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Committee on Printing Asks for Paper Bids

Fortieth Report of Committee On Paper Specifications Issues Recommendations For Paper For Public Printing — Bids Requested On Semi-Annual Supply of 60,069,000 Pounds — Awards Nov. 25.

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., Oct. 16, 1940—Bids will be opened on November 25 by the Joint Congressional Committee on Printing for paper for the use of the Government Printing Office for the six months beginning January 1, next.

The Committee is asking for bids on 60,069,000 pounds as compared with 47,400,000 pounds asked for at the last opening.

Following is the report of the Paper Specifications Committee made to the Joint Congressional Committee:

The Committee on Paper Specifications respectfully submits its Fortieth Report and the accompanying recommended schedule for paper for the public printing and binding and blank paper for the use of the Government departments and establishments in the District of Columbia for the term of 6 months beginning January 1, 1941.

Paragraph 23 of the Instructions under the heading "Payment Basis" has been revised to permit a tolerance on flat paper of 2½ per cent under weight for uncoated and 5 per cent for coated paper in accordance with commercial practice. A statement has also been added to this paragraph emphasizing that the weight of cores and wrappers are included in the net weight of newsprint paper.

Paragraph 47 of the Instructions under the heading "Expansivity of Tabulating Card Stock" has been deleted since this test is no longer required.

Paragraph 65 of the Instructions has been revised to include a statement that "All rolls except newsprint must be shipped on their side in order to facilitate handling and to avoid damage to the paper.

Lots 15 and 19—Machine finish book paper and 50 per cent rag light weight machine finish book paper.—To meet the requests of paper manufacturers, the specifications have been modified to provide for minimum orders of 10,000 pounds.

Lots 70 and 71, and 73 to 76—Sulfite manifold and 50 per cent rag manifold.—These papers are required to be delivered on skids instead of in cases.

Lots 191 and 193—50 per cent Rag Index.—The bursting strength of the 280-pound paper has been lowered from 109 to 105 points.

Lots 217 to 219 and lot 220—No. 2 kraft and No. 1 kraft.—The basis weights of these papers have been slightly increased to conform more closely to commercial practice.

Lots 276 and 277—Calendered tag.—The expansivity requirement has been eliminated from the specifications.

This schedule embraces 171 lots, which is the same as the preceding schedule. The quantity estimated for the term of 6 months beginning January 1, 1941, is approximately 60,069,000 pounds, as compared with 47,400,000 pounds for the previous contract period of 6 months.

Bids are to be asked on the following quantities: 2,000,000 pounds newsprint paper, 6,100,000 pounds machine-finish book paper, 600,000 pounds antique book paper, 600,000 pounds off-set book paper, 90,000 pounds lightweight machine-finish book paper, 230,000 pounds 50 per cent rag antique book paper, 10,000 pounds 75 per cent rag laid antique book paper, 20,000 pounds 100 per cent rag antique book paper, 3,300,000 pounds supercalendered book paper, 1,000,000 pounds coated book paper, 100,000 pounds lithograph paper, 6,350,000 pounds mimeograph paper, 500,000 pounds U S M O safety writing paper, 5,000 pounds U S M O writing paper, 4,000 pounds safety writing paper, 11,652,500 pounds writing paper, 960,000 pounds map paper, 1,755,000 pounds manifold paper, 8,910,000 pounds bond paper, 1,787,000 pounds ledger paper, 1,670,000 pounds index paper, 4,500 pounds tissue paper, 710,000 pounds cover paper, 520,000 pounds manila paper, 1,005,000 pounds kraft paper, 2,000 pounds paraffin paper, 250,000 sheets gummed paper, 202,000 pounds blotting paper, 2,500 pounds stereotype molding paper, 30,000 pounds oiled manila tympan paper, 5,000 pounds plate-wiping paper, 5,000 pounds back-lining paper, for case making, 15,000 pounds high finish red sulphite, 220,000 pounds manila tag board, 1,200,000 pounds calendered tag board, 40,000 pounds manila cardboard, 140,000 sheets railroad board, 390,000 pounds bristol board, 6,000,000 pounds United States postal card bristol board, 40,000 sheets pressboard, 7,000 pounds news board, 1,512,000 pounds chip and strawboard, 20,000 pounds marble-grained board, 36,000 pounds box board, 500,000 pounds binder's board.

Motion to Defer Abitibi Sale Dismissed

Advertised Sale of Assets of Abitibi Power & Paper Co. Seems Assured As Justice Urquhart Denies Motion of Bondholder To Stay Sale of the Properties--Power Assets May Be Worth $25,000,000.

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., Oct. 14, 1940—The future of the Abitibi Power and Paper Company is more or less clearly discerned, in the opinion of many financially wise frequenters of the counting houses of Canada, as a result of the dismissal yesterday in weekly court, presided over by Mr. Justice Urquhart, of the motion of Noranda Mines, Ltd., holders of $50,000 worth of undeposited Abitibi bonds, to have the sale of the company's assets, set for October 16, postponed, and bond interest paid forthwith and hereafter half-yearly, out of excess of net current assets over operating requirements.

In dismissing the motion, Mr. Justice Urquhart issued the following memorandum: "For reason dictated and to be issued later, motion dismissed, with costs payable by the applicants to the trustees, bondholders represented by Mr. Osler, and to the liquidator if served with notice of motion, if asked."

Sale of Abitibi Assets Appears Assured

From the arguments heard, many interpret the above memorandum as meaning that the advertised sale of the Abitibi's assets will go through, subject only to an unknown reserve bid, in a week's time, and thus a great company, with total assets above one hundred million dollars, including the common shares of Provincial Paper Ltd., will become the property of a new company organized by the bondholders.

However, it was argued by counsel for the bondholders that there was no reason why bids should not be received from other sources, and until Mr. Justice Urquhart's memoranda has been further elucidated, it is safe only to assume that if other bids are received and do not come up to the reserve bid set by the court, further action would be at the discretion of the court. Two possibilities are believed open under such circumstances. One that the court might instruct that a call be made for new bids and the other that the receiver might be instructed to negotiate for the sale of the assets.

Noranda Mines Named Plaintiff

The motion was filed in the Supreme Court of Ontario by the Montreal Trust Co. as plaintiff on behalf of Noranda Mines, Ltd., with Abitibi Power and Paper Company, Ltd., Joseph P. Ripley, Stanton Griffis, Milton C. Cross, W. H. Somerville, Edward E. Reid, Andrew Fleming and W. A. Arbuckle named as defendants and ran into more than two thousand words.

The motion, which was accompanied by an affidavit by J. R. Bradfield, secretary for Noranda, directed G. T. Clarson, receiver and manager of Abitibi, to pay to the plaintiff as trustee for the bondholders, $7,000,000, or whatever the court might direct, out of the moneys and receivables in his hands representing profits available for bond interest derived from the operation by him of the property, and until further order of the court to pay half-yearly the profits derived hereafter and available for payment on account of interest and principal of, or sinking fund for, the said bonds.

The motion further directed that the plaintiff as trustee make an immediate interim distribution to bondholders, out of the moneys so received, and from time to time to make further distributions on account of principal, interest and sinking fund, in accordance with the provisions in that behalf contained in the indenture of mortgage.

Motion Directs Adjournment of Sale

Further, the motion directed that the pending sale of the assets, etc., pursuant to the order of the Hon. Mr. Justice Middleton, dated June 10, 1940, be adjourned and the receiver and manager be continued until further order of the court.

The motion sought as an alternative an order directing that there be excepted from the pending sale the current assets in the hands of the receiver, in excess of his liabilities as such, less such amount, if any, as the court may deem reasonably necessary for sale as a going concern, and the common shares of Provincial Paper Ltd., and such other assets as the court may consider should be separately sold; and directing the receiver to realize on said excepted assets and pay the net proceeds to the trustee for distribution to the holders of the bonds in accordance with the mortgage.

In the affidavit accompanying the motion, John Ross Bradfield, secretary of Noranda Mines, Ltd., states that Noranda holds $50,000 par value of the first mortgage gold bonds of Abitibi, secured under a mortgage dated June 1, 1928, in favor of Montreal Trust Company, as Canadian trustee of the holders of the bonds for the time being, of which there are an aggregate principal amount outstanding of $48,267,000 and upon which there is interest in arrears of approximately $24,900,000, making a total bonded indebtedness of approximately $73,000,000. The affidavit showed a copy of a deposit agreement, dated June 10, 1932, between members of the bondholders' protective committee and such holders of bonds as should become parties to the agreement by depositing their bonds in the manner specified, and also a copy of a plan of procedure on behalf of the bondholders for the purchase of the assets of Abitibi by a new company, which plan is dated March 15, 1939, and was issued by the bondholders' protective committee. The plan contemplates the purchase of the assets of Abitibi in the sale proceedings and the transfer of the same to a new company which will issue to depositing bondholders certificates of beneficial interest for or common shares of the new company, the purchase price to be paid by the use of deposited bonds and coupons to the extent of the amount which upon distribution of the proceeds of the sale would be payable thereon, the balance of the purchase price to be paid in cash, including the

amount necessary to pay their proportion of the purchase price to non-depositing bondholders.

Current Assets Reported $17,156,557

The affidavit went on to state that Noranda had not deposited their bonds and that according to a statement of the receiver, the net profits from operations of the properties, before depreciation and bond interest, have been, from Sept. 10, 1932, to August 31, 1940, $21,840,756, and according to the last public statement of the receiver, the current assets, including cash, accounts receivable, inventories and net current assets of subsidiaries, totalled $17,156,-557.53, whereas the liabilities of the receiver (including a contingent reserve of $750,000) totalled $1,463,746.93, showing net working capital in the hands of the receiver of $15,692,810.60. The difference between this figure and the net profits available for depreciation and bond interest, $6,147,945.40, during the period of receivership, is accounted for by expenditures on capital improvements and additions to the properties, completion of the purchase of the Thunder Bay Paper Company, etc. The affidavit further states that the net profits from operations of the receiver have been at the rate of approximately $10,000,000 a year, and points out that the receiver had stated that the company should be able to operate comfortably on $9,000,000 of working capital, and at the present time the working capital in the hands of the receiver, available to pay bond interest, is over $7,000,000 in excess of that amount and is increasing by monthly net profits of over $800,000.

Provincial Paper Co. Shares

The affidavit concludes by stating that if in the opinion of the court any sale should be proceeded with at present, it would appear to be in the interest of the bondholders generally that there should be excepted from the sale the net current assets over and above the minimum necessary for working capital, certain other assets, such as the common shares of Provincial Paper Co., Ltd., carried on the receiver's books at a nominal value of $1,500,000, but on the basis of earnings worth very considerably more and that Noranda, as a non-depositing bondholder would prefer to see the pending sale postponed indefinitely and to have the receiver directed to not only make the interim payment to the bondholders of the excess working capital, but to make periodical payments thereafter.

Power Assets May Be Worth $25,000,000

Some months ago there was published an analysis of Abitibi, by E. B. Kernaghan, a power engineer, who believed that the power assets alone, if sold separately, would be worth $25,000,000 to Ontario Hydro-Electric Power Commission. A separate company or the Hydro Commission could service the bonds out of the profits on the power it could sell back to Abitibi and other companies and still have power to sell.

It would appear then, from all the foregoing, that there is a possibility that the assets of the Abitibi company could bring the company out of receivership in a year or two. Provincial Paper common shares, $3,000,000; Abitibi Power, $25,000,000; Excess working capital, $7,000,000; a total of $35,-000,000, whereas the back interest due on the bonds is about $25,000,000.

M. O. Schur Appointed Director

M. O. Schur has been appointed director of Brown Company's newly organized research and development department, according to an announcement made by H. P. Carruth, general manager of the company.

The new department was created through the merging of Brown Company's research department with its technical service department of which Mr. Schur was formerly director. Prior to his duties as head of the technical service department, Mr. Schur was associate director of research.

The Brown Company, which is known as the foremost producer of purified wood cellulose, is famous for its research and technical leadership in the pulp and paper industry, as well as its development of basic raw materials for rayon, plastics and nitrocellulose products. The Brown Company's discovery of the process for producing Alpha cellulose fiber led to the development of a complete family of specially refined pulps for high grade papermaking and widespread use in a great number of other major industries.

The company's utilization of northern hardwood in pulp production has created a valuable new source of income for that area of New England where this wood is plentiful.

It is believed that the important technical progress of Brown Company will be furthered by the consolidation of the former departments into a single research and development unit.

Colonel George A. Richter, who was formerly director of research, has resigned from the company, his resignation becoming effective as of October 1 of this year.

Returns to Parsons & Whittemore

After an interim of almost twenty years, J. P. Parsons returns to the firm which his father founded with Mr. Howard Whittemore thirty-odd years ago. Mr. Parsons represents the third generation of his family in paper, his grandfather having, in the middle of the last century, founded William H. Parsons & Co., paper manufacturers, with three mills in Maine. His grandfather also was one of the early presidents of the American Paper and Pulp Association.

Parsons & Whittemore, Inc., is in direct line of succession to that company and enjoys widespread recognition in paper circles here and abroad.

Mr. Parsons, who for many years was connected with the International Paper Company in an executive sales capacity, had previously traveled extensively in South America, Australia and New Zealand in the interests of American-made papers and paper products, will again devote himself to promoting the existing wide acceptance of Parsons & Whittemore as important factors in those markets as well as in the domestic field.

Brown Appoints Sierra Paper Co.

The Sierra Paper Company of Los Angeles has been appointed agent for Escort Ledger and Machine Posting, the 50% new rag ledger recently introduced by the L. L. Brown Paper Company, Adams, Mass. Impressive announcements and other interesting sample pieces relating to the new line are now being mailed to the trade.

Groundwood Papers More Active in Midwest

Better Tone Reported In Chicago Paper Market With Expectation of Uptrend In Demand Before Long—Sulphite and Groundwood Papers Most Active Now — Paper Men In Community Drive.

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., October 14, 1940—The Chicago paper market is still reflecting the general business hesitancy and the long expected trend to higher ground is still reported as impending, with more confidence reported reflected in the trade. Jobbers are finding the printing and allied industries without strong commitments from the general trade which, in itself, represents a spotty condition.

The markets in general have shown no marked disposition to weaken despite lack of stimulated demand. Any uncertainly that might prevail is usually the result of some forgetting of the costs of production, tax burden in general and raw materials markets. Specifically, groundwoods and newsprints have had a fair week with prices moving along about the channels and demand averaging higher. Krafts were unchanged over the previous week with mill operations reported about the same. Sulphites showed no change although here and there reports of increased orders were to be found as an indication that improved demand might not be very far off. Books and covers held their previous position. Boards were in better shape with certain lines responding specifically to activity in building circles. Waste papers showed no disposition to reverse their trend of last week.

Paper Men in Community Drive

Chicago is getting set for its annual Community Fund Drive with October the month of major activities and the paper and allied industries again ready to cooperate in every way. The paper industry's contribution to the goal of $3,604,000 will be $30,000 with the proceeds to be divided up among the major charity organizations in the city. The 1940 general chairman of the group will be Wesley M. Dixon, vice-president of the Container Corporation of America and well known in Chicago business circles. Assisting him will be many team "captains" equally well known in the paper trade and including the following: Irving Bachrach, Gibraltar Paper Company; Miss E. M. Anderson, J. W. Butler Paper Company; J. A. Dianis, Zellerbach Paper Company; H. S. Eckhouse, Central Bag & Burlap Company; R. A. Freeman, McIntosh Paper Company, R. M. Gleason, Murnane Paper Company; William Goldbert, Batesson & Company; Frank Haggerty, Jr., Haggerty Paper Company; W. E. Hardie, Imperial Box Company and C. M. Heiby, Moser Paper Company.

Others on the list are W. J. Marquardt, Julius Marquardt Company; A. H. Kroeck, Kroeck Paper Box Company; Sam Karasik, Pharmacy Paper Box Company; F. H. Jordan, Jordan Paper Box Company; Sam Jaffe, Apex Paper Box Corporation; A. Horwitz, Elegant Paper Box Manufacturing Company; N. A. Fleisher, Congress Paper Box Company; Alex Fisher, Mutual Paper Box Corporation; Harry Sayre, Set-up Paper Box Association; W. L. Shea, Bradner Smith & Company; W. J. Tilden, Fine Paper Manufacturers; J. D. Swigart, Swigart Paper Company; H. S. Stone, Jr., Lincoln Paper Company; D. W. Russell, Boxmakers, Incorporated; G. C. Olson, Chicago Paper Company; J. P. Norton, J. P. Norton & Sons; G. E. Mueller, Best Paper Box Company; K. E. Hellstrom, Messinger Paper Company; George Howell, Western Paper Makers Association; R. C. Johnson, Ward Paper Company; R. E. Jones, Hobart Paper Company; Miss J. Kelly, Graham Paper Company; Robert Knox, Knox & Schneider Paper Company; Harold F. Leahy, LaSalle Paper Company; Albert Meisterheim, Meisterheim & Company; J. A. Palmberg, Parker, Thomas & Tucker; V. Precht, Sabin Robbins Paper Company; F. E. Rainier, Rainier Supply Company; Joseph Farago, Master Paper Box Company; G. W. Debus, Modern Boxes, Incorporated; F. P. Wagner, Illinois Paper Box Company; Hamilton Vose, Berkshire Papers, Incorporated; J. B. Ughetti, Dwight Brothers Paper Company and E. C. Terhune, Terre Paper Box Company.

United Wallpaper Sells Plants

According to A. J. Browning, president of the United Wallpaper Factories, Incorporated, which has headquarters offices in Chicago and factories in this territory, the company will continue its policy of selling unused facilities by advertising for sale two plants at Hudson Falls, New York, and Jersey City, New Jersey. When sale has been consummated the company's sample book assembly activities will be moved to Chicago. The Hudson Falls unit has been closed since 1932 while that of Jersey City has been used only for warehousing and the sample book assembly work. Decision to offer the plants for sale, according to Mr. Browning, was due to the present demand for industrial buildings in the East to take care of the huge volume of defense contracts. Through the merger, he said, United Wallpaper acquire a surplus of manufacturing facilities and "We have been disposing of unnecessary units from time to time since then." It is much more economical, Mr. Browning said, to operate the present factories in Chicago, Joliet and York, Pennsylvania, with an extra shift than to reopen other plants during peak demand periods. The Chicago and Joliet plants are now operating on a 24-hour-a-day basis.

Safety Council Meeting Successful

Increasing interest in coordinated accident prevention work characterized the National Safety Council meetings held in Chicago this week and particularly the Paper and Pulp section program which was reported as one of the most interesting and resultful yet held. Under the general chairmanship of D. B. Chant, secretary-engineer of the Ontario Pulp and Paper Makers Safety Association of Toronto, Canada, the group clearly indicated a belief that more application to accident prevention would

be directly in line with the general national defense programs of both the United States and Canada. Shifting of employees due to conscription for military training and for actual military duty would necessitate even added caution in safety work, according to the speakers. Safe handling of bulk materials and a review of 1939-40 accident experience by F. W. Braun, chairman of the statistics committee of the Council featured the first day's session on October 14. Mr. Braun's report indicated real progress along fundamental safety lines. Reports of special committees on woods operations, paper products manufacturing and printing and publishing given by D. S. Garber of Hummell & Downing and E. D. Chapman, R. R. Donnelley & Sons, were discussed in detail. A panel discussion on safety requirements in woods to mill procedure was handled by J. E. Cantin, Quebec North Shore Paper Company; Harris Flaherty, New Brunswick Accident Prevention Association; W. D. Jenkins, British Columbia Lumber and Shingle Manufacturers Association; F. H. Stafford, Chapman & Dewey Lumber Company; G. R. Vaughan-Evans, Anglo-Newfoundland Development Company, and C. E. Wilds, Brown Paper Mills Company.

Simplified Practice for Paper

The Standing Committee in Charge of Simplified Practice Recommendation R22-33 Paper, has approved a revision of the recommendation and the following is a summary of the changes:—

The current edition of this recommendation, R22-33, recommends 6 sizes of bond and writing paper, 10 sizes of ledger, 8 sizes of book, 3 sizes of index bristol, and 3 sizes of cover paper: a total of 30 sizes.

This proposed revision, while showing a total listing of 108 sizes, does not, in fact, constitute an increase of 78 sizes, as it would at first appear. Most of the apparent increase comes about from the fact that its recommendations are according to kinds of paper. If the same practice had been adopted for the current edition, the comparison would have been very different. For example: Suppose it had been recommended that each size of bond, writing, and ledger paper listed in R22-33 be stocked in rag content and sulphite paper, and that book paper be stocked in uncoated, C2S, C1S, and offset papers; then the total number of kinds and sizes recommended for stock would have been 70. Since the kind of paper was not specified, the actual variety, counting sizes and kinds, may have exceeded that figure.

The greater part of the difference between 108 and 70 is due to the addition of 24 sizes of loose-leaf and machine posting ledgers, two classes of paper which were not covered in R22-33.

Changes in the sizes recommended for each of the use classifications are discussed below.

One new size of bond and writing paper, 34 by 44 inches, is added.

The following sizes are added to the general ledger class: 14 by 34, 17 by 56, 18 by 46, 19 by 48, 20 by 28, and 27 by 40 inches.

The scope of the ledger classification is enlarged to cover loose-leaf and machine ledgers. The following loose-leaf ledger sizes are added: 22½ by 22½, 22½ by 28½, 22½ by 34½, 24½ by 24½, 24½ by 28½ inches. The same sizes, excepting 22½ by 28½ inches, plus sizes 17½ by 22½, 19½ by 24½, 24½ by 36½, and 24½ by 39 inches, constitutes the sizes recommended for machine posting ledgers.

Two sizes, 26 by 29 and 29 by 52 inches, are eliminated from the book paper class, and the following 10 sizes added: 20 by 26, 22½ by 35, 24 by 36, 26 by 40, 30½ by 41, 33 by 44, 36 by 48, 38 by 52, 41 by 54, and 44 by 64 inches.

One size, 35 by 46, was added to the list of cover papers, but in plain coated paper only.

No change is made in the listings for index bristol.

The following is the Standing Committee for Simplified Practice Recommendation R22, Paper:—

E. W. Tinker, American Paper and Pulp Association, 122 East 42nd street, New York, N. Y., acting chairman.

J. T. Backus, the Champion Paper and Fibre Company, Hamilton, Ohio, representing the Writing Paper Manufacturers Association.

George B. Dearnley, McCann-Erickson, Inc., 50 Rockefeller Plaza, New York, N. Y., representing the American Association of Advertising Agencies.

Charles W. Fellows, Federal Reserve Bank, Richmond, Va., representing the National Association of Purchasing Agents.

Philip C. Handerson, the B. F. Goodrich Company, Akron, Ohio, representing the Association of National Advertisers.

George Heintzemann, Dexter Folder Company, Pearl River, N. Y., representing the National Printing Equipment Association, Inc.

W. R. Kort Kamp, Dill & Collins, Richmond and Tioga streets, Philadelphia, Pa., representing the National Industrial Advertisers Association.

J. H. Londergan, the National Paper Trade Association, 220 East 42nd street, New York, N. Y.

George C. Lucas, National Publishers Association, Inc., 232 Madison avenue, New York, N. Y.

T. G. McGrew, United Typothetae of America, Inc., 719 15th street, N.W., Washington, D. C.

W. Floyd Maxwell, Lithographers National Association, Inc., 295 Madison avenue, New York, N. Y.

George Olmstead, Sr., S. D. Warren Co., 89 Broad street, Boston, Mass., representing the Book Paper Manufacturers Association.

C. Wm. Schneidereith, William Schneidereith and Sons, Baltimore, Md., representing the Direct Mail Advertising Association, Inc.

Data on Auxiliary Relays

A new 4 page illustrated booklet giving descriptive, construction, and electrical and mechanical data on the type SG auxiliary control relays has just been announced by the Westinghouse Electric & Manufacturing Company. These relays, available for both AC and DC operation, have a wide application in all types and kinds of control circuits, from motor control to complicated relaying systems.

Features are described and tables give complete rating information, including coil characteristics, contact styles, etc., on both ac and dc types. Time delay is discussed and volt ampere burden is given for various operating conditions.

Both elementary, and wiring diagrams are given for the different styles. Accurate dimensions are included. Prices for the various style relays are contained in the data given; accessory prices for sheet metal cabinets also are contained.

Canadian Newsprint and Pulp Exports High

Shipments of Newsprint and Pulp To United States Now Rank Second To Gold Mining Industry In Maintaining Exchange — Exports For First Seven Months of 1940 Valued At $92,100,100.

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., October 14, 1940—Now ranking second to the gold mining industry as a provider for United States funds, exports of Canadian newsprint and pulp to the United States in the first seven months of the year reached a value of $92,100,100, according to a report just issued by the Canadian Forestry Association.

The first twelve months of the war have served to add new importance to this industry in that it stands second only to Canada's gold mines in providing U.S. exchange, so vital to the carrying on of Canada's war effort the Association states.

In this first year of conflict, newsprint shipments to the United States from Canada reached a total of $116,497,000 (out of total newsprint exports of $149,880,000) while pulp shipments to the U. S. amounted to $41,491,000, a combined total of $157,988,000 of U. S. funds thus made available. This does not take into account many millions addition of U. S. exchange arising out of sales of Canadian newsprint to countries such as the Argentine, Brazil, Mexico, etc.

New Hydro Power Installations

Coincident with the growing demand of the pulp and paper industries for hydro-electric power, supplemented by the demands of new war industries, the increase in new hydro power installations is proceeding apace. By the end of the present year more than 325,000 h.p. will have been added to the electric energy available. This will bring Canada's hydro development to more than 8,600,000 h.p., or 2 h.p. for every three persons in Canada.

According to Government experts, it would take approximately 40,000,000 tons of coal annually to produce the power Canada's rivers provide by water just rolling along through the turbines. Use of coal to speed power production as an aid to increased industrial wartime production would require the services of many thousands of Canadians. But not so with power taken from the rivers.

The waterpower resources are spread over every province. Departmental figures place the potential hydro power development at 20,347,400 horsepower at the minimum flow of the rivers and 33,617,000 ordinarily available for six months of the year.

Big installations are being made this year in British Columbia, the Northwest Territories, Ontario and Quebec.

At Upper Bonnington Falls, B.C., power development is being raised to 84,000 horsepower, an increase of 50,000. In the Northwest Territories a 4,700 horsepower unit has been installed between Resolution and Blue Fish Lakes in the Yellowknife gold mining area.

In Ontario, the South River Electric Company has added 380 horsepower to its plant near South River but the really big developments have come in Quebec.

At Beauharnois, 25 miles west of Montreal on the St. Lawrence River, two new units are being added to raise developments there by 106,000 horsepower to 583,000 horsepower, and at La Tuque, Que., Nov. 1 will see a new 178,000 horsepower development completed.

All of these developments will bring the Dominion's hydro power development to considerably more than four times what it was at the end of 1914 when Canada was last at war. Then it was slightly under 2,000,000 horsepower.

Observe Golden Jubilee

WYANDOTTE, Mich., October 14, 1940—Five hundred sixty-seven employees will be guests of honor next Thursday, October 17, when the Michigan Alkali Company of Wyandotte, one of Michigan's pioneer industrial firms, celebrates its golden jubilee with a banquet at the company's club house. The climax of the anniversary observance will be the presentation of gold watches to the 567 honor guests, all of them employees of the company for a quarter century or longer.

Heading the list of veteran Michigan Alkali workers is John A. Wolcott, master mechanic in the company's plant, who will sit at a special table reserved for more than a dozen employees with the company for more than 40 years. Wolcott has been working continuously for Michigan Alkali for 49 years, joining the company in 1891, a year after it was founded by Capt. John B. Ford.

Presentation of the token awards will be made by Emory L. Ford, president of the company; John B. Ford Jr., vice president, and other officials. Both the Fords will make short talks. S. T. Orr, general manager of the company, will be toastmaster.

At 5 P.M. an hour before the banquet starts, a new flag pole erected in front of the Michigan Alkali Company's office building will be dedicated, at which time John B. Ford Jr. will accept in behalf of the company a flag presented by the Veterans of Foreign Wars Post No. 1136. The Dearborn VFW post drum and bugle corps will participate in the dedication ceremonies.

Michigan Alkali will be 50 years old on the day of the jubilee celebration. It was founded October 17, 1890, by Capt. Ford. Seventy-nine years old at the time, and recognized as an industrial pioneer who had become the father of the American plate glass industry, the former Ohio riverboat builder founded the alkali company as the crowning achievement of a long and colorful career.

Capt. Ford died May 1, 1903, at the age of 92, remaining active to within a year of that date. In addition to founding in Michigan one of the largest and most important chemical companies in the nation, he became a great benefactor to Wyandotte, the chosen site for the alkali company.

The present head of the company, Emory L. Ford, is his grandson, and John B. Ford jr., its vice president, is a great grandson.

Nekoosa-Edwards to Increase Office Space

Work Progressing On Additions To Buildings of Nekoosa-Edwards Paper Co. To Increase Office Facilities of Laboratory and Other Departments—Paper Mills Cooperate In Mobilization Program.

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., October 14, 1940—Work is well under way on two additions to buildings of the Nekoosa-Edwards Paper Company, Port Edwards, Wis., mainly to supply additional office space.

Office is 54 by 40 feet in size and is an enlargement to the south of the main office building. The exterior will be of white clapboard to harmonize with the present structure. It will provide a display room about 22 by 28 feet, where there will be built-in cases containing samples of the many grades of paper manufactured by the company. The additional space and relocation of the rest rooms will provide facilities for increased office space for the forestry and planning departments. A south entrance also will be provided for convenient access from the engineering and laboratory offices. The entire building is to be air-conditioned, the necessary equipment being installed in the basement.

The other addition 52 by 41 feet will be one story and of brick, and is being added to the clock house. It provides increased office facilities for the engineering department, the main laboratory, and the Nekoosa-Edwards Light and Power Company. Interior alterations will bring about a rearrangement of the time-keeper's office so there will be a reception and waiting room on the first floor. Space formerly used by the fire department and for a conference room on the first floor will now be devoted to offices for the engineering and power departments. A new four-stall garage is being built to house the fire equipment and trucks.

Rearrangements on the second floor of the present building will provide new offices for the mill manager and general superintendent, and will include four new offices for the technical and research department. This will transfer all of the office work from the laboratory so that space can be used exclusively for experimental work.

The additions are being erected in such a manner that additional stories can be added later as needed. Donn Hougen, architect of Wisconsin Rapids, Wis., drew the plans and is supervising the construction.

Power Co. To Offer Common Shares

Authority has been given the Wisconsin Michigan Power Company, Appleton, Wis., to issue 28,750 shares of common stock at $20 per share, representing a total of $575,000. The company serves the Fox River Valley and Upper Michigan paper mills and consumers.

Proceeds will be used to finance storage dams and regulating works to be built in Iron County, Michigan, to stabilize the flow of the Michigamme River into the Menominee River, and increase the utilization of the generating capacity installed in the four hydro-electric plants now used by the utility. The state commission found that the power load is increasing at the rate of 2,500 kilowatts annually.

The company told the commission in its application that 1,575,000 shares of common stock authorized are not yet issued, and that the new issue will be sold to the North American Power Company, which controls the present outstanding common stock of the utility corporation. Total assets of the corporation were given as $24,870,276.

Included in its outstanding securities, before the new issue, were $5,425,000 in common stock, $4,000,000 in 4½ per cent preferred stock, and promissory notes and mortgage bonds for a total of $22,545,000. The new issue will bring the common stock outstanding to a total of $6,000,000, representing 24.91 per cent of all securities outstanding.

The company testified that its net income in 1939 was $801,500, and that for the first seven months of this year earnings were $498,903. Earnings are now capable of paying an annual dividend requirement of $180,000 on preferred stock, and leaving a balance equal to more than 9 per cent on the $6,000,000 common stock.

Atlas Tag Co. Reorganizes

The Atlas Tag Company, converters of Neenah, Wis., has announced a reorganization. New officers are: Irvin L. Young, Chicago, president; Harold W. Graverson, Neenah, vice-president; Allen B. Adams, Menasha, Wis., secretary, and Mrs. Esther J. Bleecker, Neenah, treasurer. Mr. Graverson will act as general manager.

The company has purchased new machinery and modernized the entire plant. While specializing in tags, the company does a large volume in time clock cards, labels and tag envelopes. Its business is nationwide.

Paper Mills Cooperate in Mobilization Plan

Paper mills of Appleton, Wis., are cooperating in a campaign now in progress by the Chamber of Commerce, carrying out the National Association of Manufacturers' idea of "Mobilization for Understanding of Private Enterprise." The week of October 21 to 26 will be set aside for open house in various industries, in some cases for the families of employees only, and in others for the public. The purpose is to build public good will towards the industries.

A radio program is being conducted with addresses by industrialists, including F. J. Sensenbrenner, president of Kimberly-Clark Corporation, E. A. Oberweiser, president of Fox River Paper Corporation, Charles S. Boyd, president of Appleton Coated Paper Company, and William E. Buchanan, president and treasurer of Appleton Wire Works. Newspaper advertising and publicity also are being utilized. Among the other mills and related industries cooperating are: Tuttle Press Company, Appleton Woolen Mills, Riverside Paper Corporation, Badger Printing Company, Wisconsin Wire Works, Joseph J. Plank Company, Valley Iron Works Company, Combined Locks Paper Company, Appleton Paper Products Company, Appleton Machine Company and Fox River Wire Cloth Works.

Philadelphia Paper Men Plan Credit Setup

Board of Governors of Philadelphia Paper Trade Association Meet —Credit Clearing Setup To Be Discussed At November Session— Fine and Wrapping Paper Divisions To Hold Joint Meetings.

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., October 14, 1940—The board of governors of the Philadelphia Paper Trade Association met in its headquarters at the Drexel Building on Wednesday, October 9, with President Nate Saxe presiding. The meeting was very much enlivened by the fact that President Saxe announced that every member of the association had paid his dues and is now in good standing. It was decided hereafter to hold a joint luncheon meeting of the fine and wrapping paper divisions on the second Monday of each month, excepting when it falls on a national holiday, at which time it will be held the day following, which is the case with the first of these joint meetings scheduled for November, and because of the fact that this will be Armistice Day the meeting will be held on Tuesday following. The luncheon will be held at the Down Town Club and will be free.

Plan to Form Credit Clearing Setup

Interest at this November meeting will be centered round very definite plans that will be offered to establish a credit clearing setup, and in this connection John Kole of Garrett-Buchanan Company, and Gilbert Spare of D. L. Ward Company, both credit men in their respective houses, have offered their services to put the credit plan on a working basis. George K. Hooper, president of Philadelphia Paper and Cordage Association, and chairman of the planning committee, which was organized to establish this new credit clearing setup, laid the ground work for it at a dinner meeting of the Philadelphia Paper Trade Association held in Kugler's Restaurant a few weeks ago.

Resolution of Sympathy Offered

A resolution of sympathy was offered to Butler Smythe, president of J. L. N. Smythe Paper Company, and a former president of the association, on the recent death of his mother, Mrs. J. L. N. Smythe.

Paper and Cordage Men Play Golf

With a full day's program terminating in a dinner at Silver Lake Inn, the seventh and final golf tournament for the 1940 season of the Philadelphia Paper and Cordage Association was held at Pine Valley Country Club, Clementon, N. J., on October 9. With ideal golfing weather fifty-six players teed off determined to break par if possible.

The winners of the various events were: Low gross—A. Maley of Gifford Manufacturing Company, with an 88. Second low gross—Sam Lopin with a 93. Third log gross—L. Addis with a 94. Low net—N. Karlson with a 76; second low net, J. Morton, J. L. Thomas of Whiting-Paterson Company, and Charles Labor of Champion Coated Paper Company tied with a 79.

The contest for the most Eights was tied by J. Flury of Gifford Manufacturing Company and Ralph E. Fraser of General Accident Insurance Company. The prize was a handsome electric alarm clock, donated by Lawrence Reineman, president of Buffalo Envelope Company.

High score for the day was won by T. Greenwood, with a total of 148, which included an 18 on the No. 6 hole. Mr. Greenwood says the "Pine Woods was responsible" as he found blazing a new trail to the green used up many strokes. His prize was a large carton of assorted products donated by Peerless Manufacturing Company, Oakes, Pa.

Wins Buffalo Envelope Co.'s Trophy

The Buffalo Envelope Co.'s trophy, which is awarded the player with the lowest net average over the entire season, providing he participates in four or more tournaments was won by A. Brosius of Satterthwaite-Cobaugh Company in 1938; in 1939, J. R. Howarth, president of J. R. Howarth Paper Company, captured it; and the winner for 1940 is J. L. Thomas of Whiting-Paterson Company with a net average of 76. Howard Satterthwaite was a close runner-up with a 78 average. This trophy can be held for only one year, after which it is put in play.

Among the out-of-town visitors were Lawrence Reineman, president of Buffalo Envelope Company, Buffalo, N. Y., who played a consistent game but faltered on the last two holes, and was tied with Howard Bancroft, the present champion, for seventh low gross. E. S. Sickles of New York was a guest of Hugo Hansom of W. C. Hamilton & Sons. Dick Richards, local representative of Buffalo Envelope Company, was host for this tournament.

Prizes will be awarded the winners at the next regular monthly luncheon meeting of the Philadelphia Paper and Cordage Association, which will be held on Friday, October 18, in the down-stairs restaurant of the Adelphia Hotel. L. P. Warner of the purchasing staff of the Atlantic Refining Company will be the guest speaker.

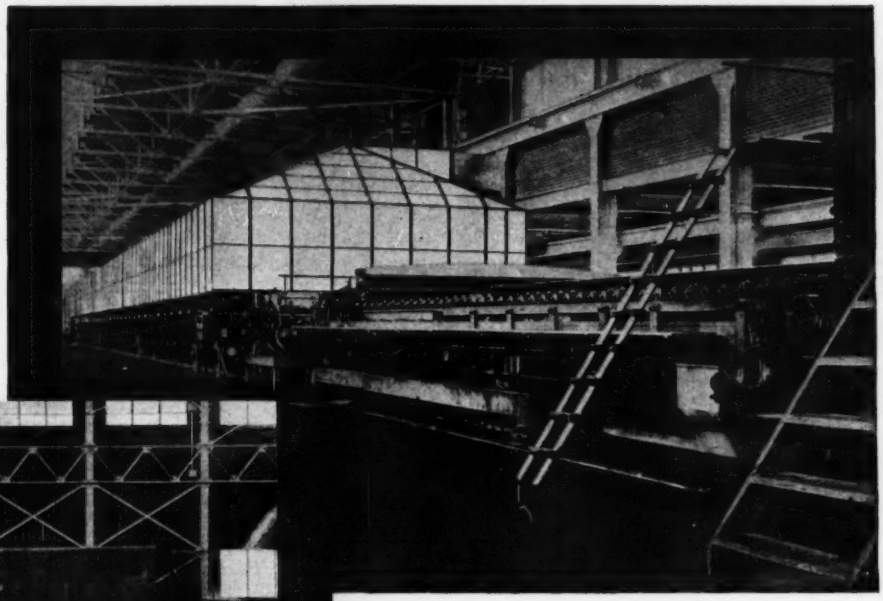
Let the Earth Speak

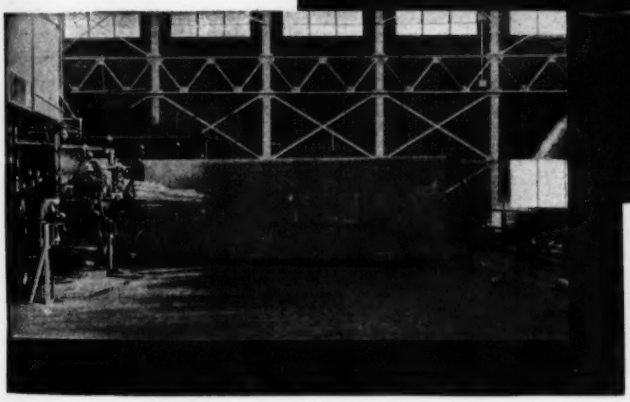
An announcement of unusual interest to friends of the Whitaker Paper Company is the publication of a new novel by Ann Steward, wife of Harold C. Steward, the treasurer of the Whitaker Paper Company, Cincinnati, Ohio.

The scene is laid in Kentucky in the country-side where Mr. and Mrs. Steward now live, on a 100 acre farm near Cincinnati, and some of its incidents depict their own experiences in the raising of sheep, cattle, and saddle horses.

Mrs. Steward has published some short stories, children's plays and poems, but this is her first novel. The title is "Let the Earth Speak" and it is described by the publisher, the MacMillan Company, as "a highly individual piece of work, strangely fascinating and an intensely dramatic story".

THE BELOIT *Removable Fourdrinier*





● Wire is strung in aisle while machine is in operation, if desired.

● Fourdrinier pit can be washed out while wire is being installed.

● Wire bundle is taken from shipping box and mounted directly in carriage—no chucks to apply—no further handling as bundle is unreeled as carriage moves along to form wire loop.

● All wire poles are mounted in carriage before loop is formed. Inside poles are inserted inside the wire.

● Safest — most convenient — quickest method of installing Fourdrinier wire.

THE BELOIT WAY BELOIT IRON WORKS PAPER MACH'Y BELOIT, WIS. U.S.A. IS THE MODERN WAY

Pacific TAPPI Meets at Portland

The first TAPPI dinner meeting of the 1940-41 series was held at the Heathman Hotel, Portland, Ore., on the evening of October 8. F. A. Olmstead of the Crown Zellerbach Corporation and chairman of the Pacific Section, presided and introduced W. N. Kelly, vice chairman, who is in charge of the programs.

Dinner Meeting Dates

The dinner meetings for the remainder of the year were posted as follows:

November 12, 1940, Everett, Wash.; January 7, 1941, Camas, Wash.; February 4, 1941, Tacoma, Wash.; March 4, 1941, Longview, Wash.; April 8, 1941, Port Angeles, Wash.; May 1941, Reserved for possible meeting in Vancouver B. C.; June, 1941, Annual Meeting.

Edward M. Root Speaks

The first speaker of the evening was Edward M. Root, Dilts Machine Works, Fulton, N. Y. The paper was entitled "Stock Preparation" and discussed the use of beaters, jordans and modifications of these on various types of paper stocks. The accompanying slides of graphs and photo micrographs were eagerly discussed by the audience.

Following this discussion, Chairman Olmstead explained the modification to be made in judging the winner of the Shibley Award for the coming year. Judgment will center now on two points: (1) Value to the industry. Rating 60%, (2) Presentation. Rating 40%. Formerly a paper was rated equally on the above points and on interest. In other words, the amount of discussion of the paper was to be considered in judgment. Experience has revealed that the interest and discussion depended too much on the locality of the meeting and the place of the paper on the evening program.

Measurement of Wire Life

The first paper presented this year for the Shibley Award was by M. J. Franklin, Technical Department, Crown Willamette Paper Company Division, Crown Zellerbach Corporation, Camas, Wash. The talk was entitled "The Measurement of Wire Wear and Wire Life". The usual measurements of wire life were outlined and the very interesting method being studied at the speaker's mill. Graphs of wire wear and life and photo micrographs of wires were used to illustrate the talk.

Those in Attendance

Those present included: Leslie L. Anderson, Fred Armbruster, Chester Beals, George H. Beisse, Louis H. Blacherby, Robert A. Bremner, Thomas F. Buford, William W. Clarke, Darrah Corbet, Frederick Covell, J. V. B. Cox, J. D. Darby, P. T. Dickie, H. J. Drew, M. L. Edwards, Donald Erickson, Lloyd R. Ewing, Carl Fahlstrom, M. J. Franklin, Harry W. Glenn, T. H. Grant, David C. Greeley, H. W. Hall, W. H. Haverman, Walter S. Hodges, Herman F. Hoehne, W. F. Holzer, Otto L. Hudrlik, Henry Jacobsen, W. C. Jacoby, Lyal Jones, Norman Kelly, Lauren A. LaFond, Clyde Lieser, Dorsey E. Lowther, Robert W. Martig, G. N. McGregor, Otto Michaelis, T. E. Moffitt, T. H. Moran, O. P. Morgan, A. G. Natwick, George Nelson, S. Norman, M. H. Norton, M. E. Norwood, Max R. Oberdorfer, Ross F. O'Brien, F. A. Olmstead, Gus Ostenson, Morris M. Peterson, R. T. Petrie, E. D. Rich, H. H. Richmond, Edward M. Root, H. L. Rudow, Rex H. Russell, B. W. Sawyer, Harlan Scott, W. J. Shelton, Brian Shera, Carl Sholdebrand, Anton P. Siebers, Frank Smith, Ray Smythe, L. E. Stevenson, A. Ward Tedrow, Vernon L. Tipka, Cecil L. Triplett, R. M. True, Preston Varney, R. D. Waddell, Harold C. Wall, Fred J. Weleber, Jack Wilcox, R. P. Wollenberg, Edward P. Wood and Herbert H. Wymore.

Delaware Valley TAPPI Discusses Lithography

The Delaware Valley Section of the Technical Association of the Pulp and Paper Industry held its first meeting of the season at the Philadelphia Art Alliance in Philadelphia on Friday evening, October 11th. E. J. Albert of the Thwing-Albert Instrument Company presided as chairman.

During the entire month of October the Art Alliance is housing an outstanding exhibit of lithographed books, displays, magazines, pottery, textiles, posters, packages, canned products, catalogs, maps, music and a miniature lithographed plant. Following the dinner, those present were shown the detailed operations, fundamental to lithographic preparation and reproduction.

Following this demonstration a panel discussion was held in which the following answered questions and discussed various phases of lithography: Herbert Hosking of the Chilton Publishing Company and general chairman of the exhibit, Clayton Whitehill, artist, and Van Courtland Walter, coordinator of printing.

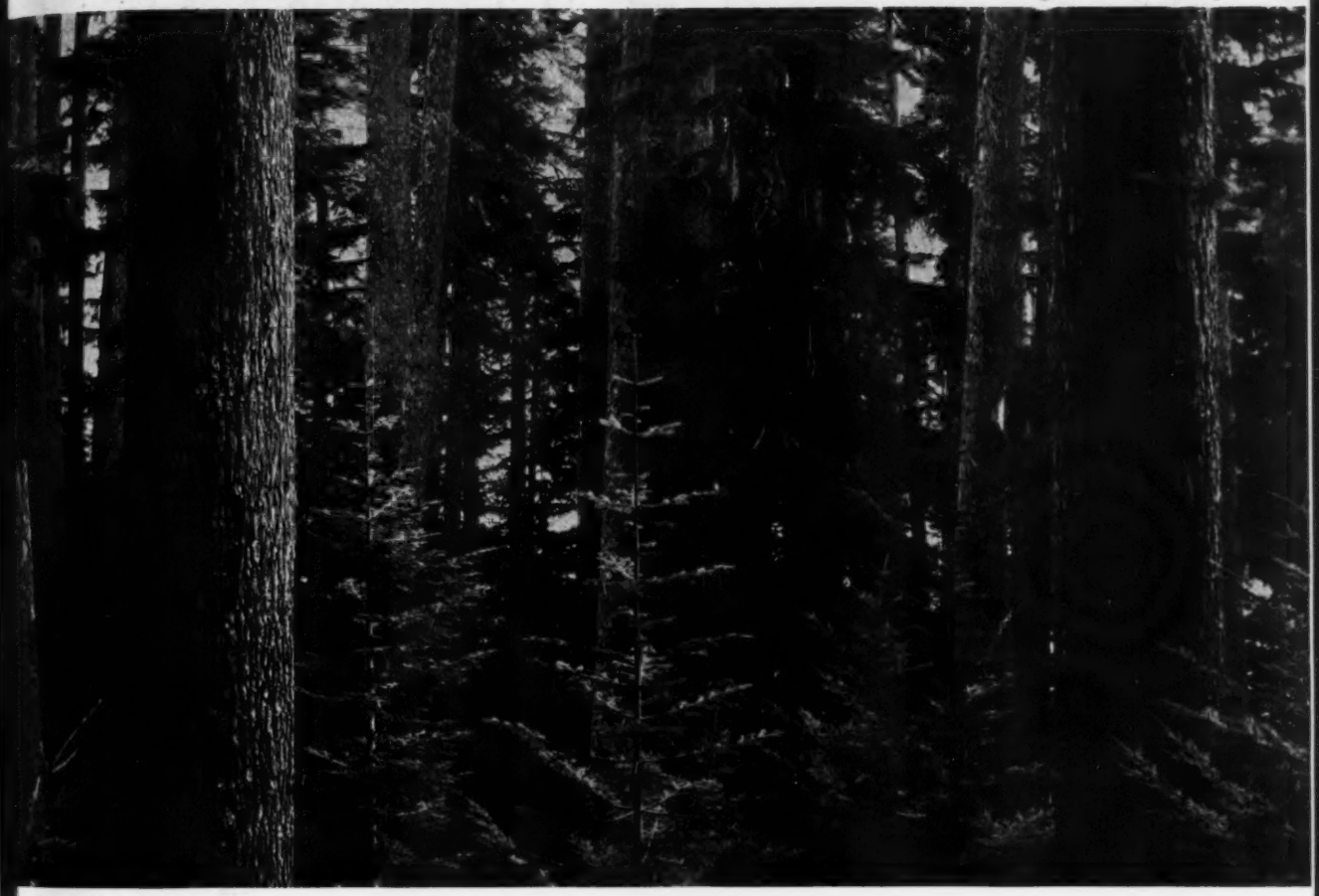
The present included: W. T. Adelhelm, E. J. Albert, J. R. Atwater, R. M. Bates, R. T. Bingham, A. L. Bixler, Alan R. Boyd, J. M. Chestnutt, C. M. Connor, S. M. Cooper, J. D. Davis, D. Dieffenderfer, Paul Dieffenderfer, Elizabeth Edge, Jacob Edge, George A. Farrah, Thomas P. Field, John D. Gercke, Emerson N. Glauner, Samuel Hagner, A. S. Hall, J. F. Halladay, Lois Hans, Ward Harrison, C. W. Hoffman, Herbert Hosking, Harry Hulmes, Jr., W. R. Ingersoll, Leslie Justice, Gabrielle Landt, G. E. Landt, Mrs. G. E. Landt, George J. Lane, Edward Le Bon, E. Leonard, Wm. E. Lickfield, R. G. Macdonald, John Macadam, F. J. McAndrews, Louise McGrath, George Marin, W. B. Morehouse, Floyd W. Nienow, H. A. Norseen, Henry C. Pitz, E. N. Poor, John Roslund, J. Carl Schmidt, W. M. Shoemaker, Chas. S. Shubert, Henry C. Spech, Elliot I. Stokes, George Suydam, John Tuttle, Mrs. John Tuttle, Thomas W. Toovey, R. H. Unterdown, J. W. Voller, Clayton Whitehill and A. W. Wickham.

To Be Ad Manager for Carter, Rice

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., October 14, 1940 — Alfred W. Bollinger, formerly engaged in promotional work on book papers, has been promoted to advertising manager of Carter Rice & Co., Corp.

For a Continuous Domestic Source of Supply



American industry is faced today with the greatest challenge it has ever known. It is asked—almost overnight—to speed up production—to produce phenomenal quantities of essential materials to meet a national emergency.

In line with Rayonier's established policy of—

a Continuous Domestic Source of Supply

it will lend its fullest support to the program of an adequate domestic supply of paper and dissolving pulps on its customary proven *quality* basis.

Better Pulps for Better Performance

RAYONIER

INCORPORATED

For a continuous domestic source of supply

EXECUTIVE OFFICES:	MILLS	SALES OFFICES:
343 Sansome St. San Francisco	FERNANDINA, FLORIDA HOQUIAM, WASHINGTON PORT ANGELES, WASH. SHELTON, WASHINGTON TACOMA, WASHINGTON	122 East 42nd St. New York City

Government Paper Bids and Awards

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., October 16, 1940—National Pulp and Paper Company has been awarded the contract for furnishing the Government Printing Office with 410,000 pounds of newsprint paper in 24, 36 and 48 inch rolls at 2.7 cents and the same firm will furnish also 60,000 pounds of same in 36 inch rolls at 3.35 cents, bids for which were received on September 23. Other paper awards announced by the Printing Office include the following:

Aetna Paper Company will furnish 5,000 pounds of 50% rag, 22½ x 28½ pink index paper at 11.21 cents. Barton, Duer & Koch Paper Company will furnish 5,000 pounds each of salmon, green and salmon (different weight) at 13.38 cents. Bids were received on September 23.

Stanford Paper Company will furnish 15,600 pounds of white sulphite ledger paper 24 x 38, 156 pounds, at 5.99 cents and 20,475 pounds of same 136½ pounds at same price. Same company will also furnish 18,300 sheets of 22 x 28 orange cardboard at $48.40 per M sheets. Bids for these items were received on September 23.

Mudge Paper Company will furnish 33,850 pounds (350,000 sheets) of various sizes 75% rag, litho finish map paper at 12.11 cents. Barton, Duer & Koch Paper Company will furnish 10,000 sheets of 22 x 28 gray photo mount board at $35 per M sheets. Bids for these items were received on September 23.

Whitaker Paper Company will furnish 10,000 sheets of 24 x 36 brown cloth lined paper at $108.88 per M sheets and the same firm will furnish the same Quaker drab at $143.32 per M sheets. Mudge Paper Company will furnish 200,000 sheets of 24 x 36 white cloth lined paper at $73.22 per M sheets. Bids for these items were received on September 20.

Mathers-Lamm Paper Company will furnish 7,500 pounds of 25 x 34 No. 1 binders board at 3.8 cents. Paper Corporation of U. S. will furnish 5,859 pounds of 21 x 32, 50% rag, blue bond paper at 12 cents. Paper Corporation of U. S. will also furnish 5,000 pounds of 50% rag, 22½ x 28½ buff index paper at 11.5 cents. Bids for these items were received on September 18.

Barton, Duer & Koch Paper Company will furnish 40,000 pounds of 22½ x 28½ ivory calendered tag board at 9.5 cents bids for which were received on September 16.

Printing Office has received the following bids for 36,625 pounds (250,000 sheets) of 28 x 34 white sulphite ledger paper; Stanford Paper Company, 6.19 cents; Barton, Duer & Koch Paper Company, 7.22 cents; Whitaker Paper Company, 6.34 cents; Mudge Paper Company, 6.45 cents; Marquette Paper Company, 5.94 cents; Old Dominion Paper Company, 6.3936 cents; and Eastern Corp., 7 cents.

For 5,290 sheets of 20 x 25 yellow gummed paper: Virginia Paper Company, $9.45 per M sheets; R. P. Andrews Paper Company, $9.85; Mathers-Lamm Paper Company, $9.90; Whitaker Paper Company, $9.99; and Mudge Paper Company, $10.46 and $11.24.

For 2,000 sheets of 20 x 24 red glazed paper: R. P. Andrews Paper Company, $13.90 per M sheets; Whitaker Paper Company, $11.55 less 2%; Mudge Paper Company, $15.70; and Mathers-Lamm Paper Company, $14.95.

For 30,100 pounds (100,000 sheets) of 75% rag, 44 x 64 litho finish map paper: Mudge Paper Company, 11.98 cents; R. P. Andrews Paper Company, 12.63 cents; Stanford Paper Company, 17.23 cents; Whitaker Paper Company, 17.06 cents; and Paper Corp. of U. S., 13.70 cents.

For 10,250 pounds (100,000 sheets) same 30 x 40; Mudge Paper Company, 12.78 cents; R. P. Andrews Paper Company, 12.63 cents; Stanford Paper Company, 17.23 cents; Whitaker Paper Company, 17.06 cents; and Paper Corporation of U. S., 13.70 cents.

Maine-New Hampshire Group Meets

The members and friends of the Technical Association in northern New England will meet in Aubert Hall, University of Maine at 2:00 P.M. Friday and Saturday, October 25-26, 1940. Following a brief business meeting Prof. Paul D. Bray, head of the Pulp and Paper Division, Department of Chemistry, will give a brief account of the work of this division. Prof. J. C. Caulfield will then give a progress report covering the work by the division on paper drying. Inspection of the pulp and paper laboratories will follow.

At 6 P.M. a banquet will be served in Estabrook Hall. Music will be furnished by the University Glee Club and after dinner President Arthur Hauck of the university will speak. Dean Paul Cloke of the College of Technology will speak on plans for the future development of the pulp and paper division. Richard Cross of the New England Council will talk on New England Industries and A. E. Norton of Portland, Maine, will talk on Plastics in the Paper Industry.

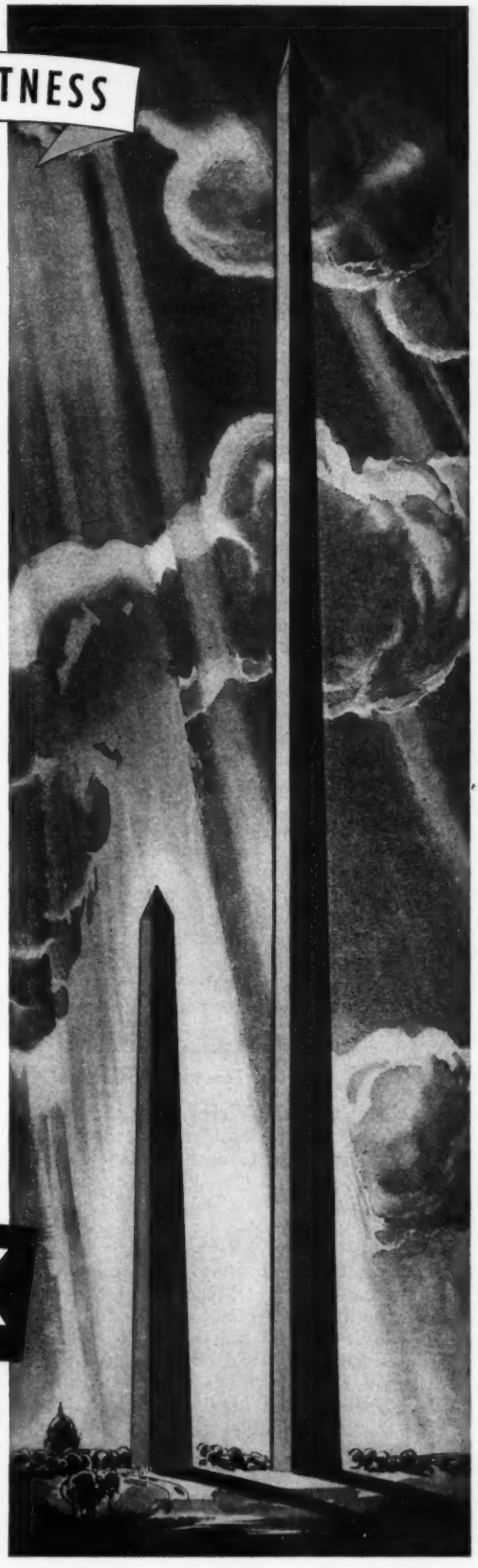
At 9 A.M. on Saturday, H. G. Noyes of the Oxford Paper Company will discuss vocational training. This will be followed by a showing of the new film of the Maine Seaboard Paper Company, covering complete operations from woods to pressroom. Luncheon will be served at noon in Estabrook Hall and in the afternoon there will be an opportunity to see the Maine-Bates football game. Those who desire to attend this game and meeting should notify W. E. Brawn of the Pejepscot Paper Company, Brunswick, Maine, at once. An interesting and extensive program has been arranged for the ladies who will attend. All who may be interested in this meeting are urged to attend.

Box Concern Gets Desist Order

WASHINGTON, D. C., October 16, 1940—Gem Corrugated Box Corporation, New York, engaged in the sale and distribution, as jobbers, of fiber boxes, has entered into a stipulation with the Federal Trade Commission in which it agrees to cease and desist from marking, stamping or branding its products with its corporate or trade name together with the words "Certificate of Box Maker" or the word "Maker" or any words of similar meaning, which tend to convey the belief to purchasers or others that the corporation makes or manufactures the products, or that it actually owns and operates or directly and absolutely controls the plant or factory in which the products are made or manufactured.

OPACITY • WHITENESS • BRIGHTNESS

A SKY-PIERCING SPIRE OF TITANOX PIGMENTS



If all the TITANOX pigment produced in one year could be placed in one heap, it would make a mountainous pyramid nearly two and one-half times as high as the Washington Monument and with equal base. It would represent the largest production of titanium pigments ever attained in a single year by one manufacturer.

In addition that huge pile would exhibit the highest quality to which titanium pigments have been developed, including all the newest improvements that make TITANOX adaptable for every use to which white pigments can be put.

To paper manufacturers these facts give assurance—that in using TITANOX for pigmentation, they will have the advantage of the latest pigment improvements, the finest titanium pigments that are made, the cooperation of the original and largest producer of titanium pigments, and an ample supply, quickly available at all times.

Our Paper Service Department will be pleased to receive your technical inquiry

TITANOX

REG. U.S. PAT. OFF.

TITANOX

TRADE MARK

TITANIUM PIGMENT CORPORATION

SOLE SALES AGENT

111 Broadway, New York, N. Y.; 104 South Michigan Avenue, Chicago, Illinois; National Lead Company (Pacific Coast Branch), 2240 24th Street, San Francisco, California

Obituary

Winfield A. Huppuch

[FROM OUR REGULAR CORRESPONDENT]

GLENS FALLS, N. Y., October 14, 1940—Winfield A. Huppuch, founder of the old Standard Wall Paper Company of Hudson Falls, and former chairman of the Democratic State Committee, died this week at his summer home at Lake George following a brief illness. He was 78 years old. He was born in Buffalo in 1860 where he was educated in the public schools. In 1889 he entered the employ of William Campbell and Company, wall paper manufacturers, and a few years later was made a partner. In 1893 the plant was destroyed by fire and the following year the firm was dissolved. In the fall of 1894 the Standard Wall Paper Company was formed with Mr. Huppuch as general manager and first vice-president. Later he became its president. The company, which became one of the largest in the wall paper industry, figured in a merger in 1927 which resulted in the organization of the United Wall Paper Factories, Inc., with Mr. Huppuch as president. He continued in that capacity for several years and later became chairman of the board of directors, from which position he retired some time ago.

During his career he also served as vice-president of the Iroquois Pulp and Paper Company; president of the Standard Textile Company of Glens Falls; vice-president of the Albany Securities Company; vice-president of the Glens Falls Trust Company; a director of the Adirondack Trust Company of Saratoga Springs, and a vice-president of the People's National Bank, of Hudson Falls. He was always a leader in Democratic politics and attained statewide prominence when he was made chairman of the State Committee in 1910. He had been a delegate to the national conventions and was a presidential elector in 1936. During the first term of President Roosevelt he was appointed vice-president and general manager of the Farm Credit Administration in Northern New York and in 1933 he was mentioned for appointment as collector of the Port of New York. The principal survivors are a son, two sisters, and several nieces and nephews.

Funeral services were conducted at the family residence by the Rev. P. B. Ferris and burial was in Grandview Cemetery.

Mrs. Hector McVicker

Mrs. Hector McVicker, wife of Hector McVicker, president and general manager of the Chillicothe Paper Company, Chillicothe, Ohio, died of pulmonary embolism on October 7, although she had been ailing for some time, she was seriously ill only four days.

Mrs. Margaret Elizabeth Weigand McVicker was born in Chillicothe Oct. 27, 1866, the daughter of John and Margaret Mandel Weigand, both of whom were natives of Germany. All of her life was spent in Chillicothe.

On June 11, 1885, she was united in marriage with Mr. Hector McVicker, who survives her. They had been married for 55 years.

Also surviving are two daughters, Mrs. Bertha Francis of Cincinnati and Miss Hazel McVicker at home; one son, Mr. Russell McVicker of Chillicothe; seven grandchildren, one great grandchild, and one sister, Mrs. Wesley Vincent of Springfield township.

Union Bag Announces Changes

H. S. Daniels, general manager of the Union Bag and Paper Corporation which has just been sent out, states that "the correlation of sales and manufacturing has become such an important function of this company as a result of its sales and manufacturing expansion in recent years, that certain changes in organization have become necessary.

"L. J. Doyle, who has served as general sales manager since 1934, has been promoted to the position of general production manager.

"While it may seem strange to select a sales manager for this position, it has long been the policy of this company that its manufacturing operations be dictated by the sales department which, in turn, reflects the desires of its customers.

"The title of "general production manager" does not imply any pure manufacturing responsibility, but it does carry the control of the grades and qualities we shall produce, what service standards we should meet, and all of the supporting matters that go toward the betterment of our relations with and service to our customers. As such Mr. Doyle's experience as general sales manager obviously qualifies him to perform a real service in his new position.

"To succeed Mr. Doyle, G. B. "Buzz" Gibson has been appointed general sales manager. For the last four years, Mr. Gibson has been the sales manager of our board and pulp department. Prior to that time he has had a lifetime of experience in all phases of the paper industry and brings an unusual combination of practical manufacturing knowledge and sympathetic understanding of merchandising to his new assignment.

"To succeed Mr. Gibson, Norman Beardsley (previously assistant to Mr. Gibson) has been appointed sales manager of the board and pulp department.

"We believe that these changes, all of which become effective immediately, will quickly reflect themselves in an improvement of team work which should make this company a more valuable source of supply for its many friends in the trade."

Start Container Plant at Winchester

WINCHESTER, Va., October 14, 1940—A new container industry which eventually may give employment to about 30 persons has located near Winchester on the Papermill road in quarters leased from Fred L. Glaize.

The firm, catering chiefly to the needs of the apple industry, is the Southern Container Corporation of which Robert Carnwath, of Philadelphia, is president, and his son, Robert Carnwath, Jr., also of Philadelphia, is secretary-treasurer. The general manager of the corporation is Samuel Carnwath.

Mr. Carnwath said his company is open for business this Fall chiefly for the purpose of introducing the containers but that it is planned to manufacture containers next year, some of which will be of treated fiber. Containers for other needs also will be manufactured, he said.

DU PONT SAFRANINE T EXTRA

A WELL-ESTABLISHED PRODUCT IN THE PAPER INDUSTRY

THE high tinctorial power and brilliancy of Du Pont Safranine T Extra have contributed to its popularity in the production of bright pink and red shades for wrapping, tissue and other medium grade papers.

This color also finds wide use in pink blottings, as it works well on unsized bleached rag without the aid of alum as a mordant.

Du Pont Safranine T Extra is suitable for calender coloring and dipping, has very good solubility, does not bleed, but has a slight graniting effect.

Paper mills using Du Pont Safranine T Extra have learned to depend upon product uniformity. Du Pont manufacturing methods governed by careful chemical control have assured the user of consistently uniform materials.

DU PONT DYESTUFFS
REG. U.S. PAT. OFF.

E. I. DU PONT DE NEMOURS & CO. (INC.), ORGANIC CHEMICALS DEPT., DYESTUFFS DIV., WILMINGTON, DEL.

Paper Index for August is 107.3

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., October 16, 1940—Index of the value of paper and allied products manufacturers' inventories for August was 107.3 compared with 104.5 in July and 93.1 in August of last year, taking December 31, 1938 at 100, according to the Department of Commerce August industry survey.

Taking January 1939 at 100, the index of the value of paper and allied products manufacturers' shipments for August was 128.7 compared with 134.6 in July and 103.9 in August of last year.

Department's industry survey for August reveals the continued heavy volume of new orders placed with manufacturers during recent months provided the basis for a 9 per cent rise in shipments over July. Deliveries equaled the high totals of last October and November.

Lack of general inventory accumulation during August indicates, the survey points out, that the enlarged volume of shipments represents goods moving out of the hands of manufacturers into consumption and distribution channels. This differentiates the present rise in industrial activity from that which occurred in the fall of 1939. Although the new-order index last fall exceeded the present level, the volume of transactions at that time was increased by the purchase of semifinished goods for inventory accumulation.

Although shipments moved in increased volume, incoming business more than kept pace with the delivery rate and there was a further rise in unfilled orders. August was the fourth successive month in which the backlog of unfilled orders in the durable goods industries expanded, incoming business during the month setting a new high for the year.

Pronounced increases over July in new orders were reported by almost every durable goods group, the outstanding exception being the iron and steel products group which recorded a decline of 8 per cent from the July total.

Incoming business in the non-durable goods industries fell off slightly from July to August. While divergent seasonal influences tended to cancel out changes in individual industries, the margin of gain over the corresponding 1939 month was about 5 per cent in both July and August.

The unfilled-order backlog for manufacturing industries in the durable goods group, excluding aircraft and shipbuilding where unfilled orders are at record levels, increased 10 per cent in August, expanding the total to almost 40 per cent above the year's low of last April. At the end of August unfilled orders were about 80 per cent above the total on the books just prior to the outbreak of the European war last year.

Outstanding were the new order backlogs of the machinery industry. Unfilled orders in the electrical machinery group rose 20 per cent while manufacturers of other machinery reported an 8 per cent advance. The total backlog for each of these groups was more than double the August, 1939, figure.

Virtually every durable goods industry, with the exception of the automobile group, reported an increased rate of shipment in August. The iron and steel products group, advancing almost 12 per cent from July, was outstanding. Shipments for other durable goods groups, composed of lumber, furniture, stone, clay and glass products, and non-ferrous metals industries, advanced to a new high for 1940.

Shipments of non-durable goods industries were also at a high for the year, with every industry group except paper products recording gains over July. Seasonal factors were partly responsible for the high shipment rate, the apparel and shoe manufacturers in particular making deliveries of fall merchandise.

Powell River Band on Southern Tour

VANCOUVER, B. C., October 14, 1940—One of the most unique and interesting goodwill tours ever conducted within the pulp and paper industry is now being sponsored by the Powell River Company, Ltd., operators of the largest individual news print mill on the Pacific Coast at Powell Rivers, B. C. Fourteen members of the employees' pipe band of this company are at present engaged on an aerial good will tour of the southern states. Under the management of Elmer Lee, vice-president and general manager of the Virginia Dock and Trading Company, Seattle, a subsidiary of the Brooks-Scanlon organization which also controls the Powell River Company, the band left Vancouver by air and made its first stop at San Francisco where they played on Treasure Island in the Temple Compound before 10,000 people and according to newspaper reports took San Francisco by storm.

The band stayed at the St. Francis Hotel, facing Union Square, and at the request of the management of the hotel they played in the lobby of the hotel and were heard over a national hook-up when Pipe Major Whyte of the band was interviewed. They also piped into the hotel the Democratic candidate for the vice-presidency of the United States, Henry A. Wallace and Governor Culbert Olson of California.

Continuing from San Francisco, the band played in Los Angeles and as the special motif for their trip appeared on Press Day, October 5, at the Texas State Fair in Dallas. Other engagements for the band were arranged at El Paso, Houston, Corpus Christi, San Antonio, Tulsa, Ft. Worth and Amarillo. The band will return to Vancouver by air in late October.

All members of the band are in the traditional piper's dress and each of the members has an average of 13 years service with the company.

While the band was playing in the Mural Room of the St. Francis Hotel, Elmer Lee called S. D. Brooks and Harold Foley, Powell River executives in Vancouver by long distances and these gentlemen listened in and were much impressed with the patriotic and goodwill trip of their employees.

Bowater Sets New High Record

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., October 14, 1940—Bowater's Newfoundland Pulp and Paper Mills, Ltd., will set a new high record in wood cut in the 1940-41 period, estimated in excess of 400,000 cords. Of the total, 320,000 cords is booked for the Cornerbrook mill, while 80,000 cords will be exported.

Shipments of newsprint from Newfoundland mills in the first eight months of this year were 251,233 tons, against 172,447 tons in the corresponding period last year. The new sulphite mill of the company is expected to be in operation by Jan. 1, according to H. M. S. Lewin, general manager.

THE REX MAN REPORTS.."HERE'S HOW THEY CUT THE COST PER CORD HANDLED FROM SIDING TO CHIPPERS"

More than a mile of Rex Z-Metal Durobar chain belt is the key to the efficient log handling system in this new southern mill. The logs are hauled from cars to barkers to chippers on the back of this husky chain belt. It is the same chain belt used throughout the pulp and paper industry for all-around pulpwood conveyor service where high shock loads are common, lubrication is poor, and wet abrasive conditions are typical.

From every standpoint—of design, quality and price—Rex Durobar is the chain belt to use in this type of service. Made in Rex Z-Metal, *it is more than 25% stronger than any malleable chain of its type;* it has greater ability to stand up under shock loads; and resists breakage and corrosion.

Rex Z-Metal Durobar is only one of a long line of chain belts especially developed for the pulp and paper industry. They are all explained in the book, "How to Handle IT If It Is Wood."

To see how Rex chain belts can help you lower the cost per cord handled in your plant, send for your copy today. It will be sent by return mail. Address Chain Belt Company, 1605 West Bruce Street, Milwaukee, Wisconsin.

Quick delivery from stock on chain belts, sprockets and transmission equipment.

REX CHAIN BELTS

CHAIN BELT COMPANY OF MILWAUKEE

Baldwin-Duckworth Chain Belt Division, Springfield, Massachusetts • Worcester, Massachusetts
Rex Chain Belt and Conveyor Divisions, Milwaukee, Wisconsin

Win in Safety Contest

The following winners in the 1939-1940 Industrial Safety Contest sponsored by the National Safety Council have just been announced:—

CERTIFICATE OF MERIT WINNERS

(2 and 3 designate second and third places)

Division I (Pulp and Paper Mills)

Group A. 2. Anglo-Canadian Pulp and Paper Mills, Ltd., Limoiloi, Que., Canada; 1,712,994 man-hours with 1 reportable injury.

3. Hollingsworth & Whitney Company, Waterville, Maine; 3,365,605 man-hours with 9 reportable injuries.

Group B. 2. St. Croix Paper Company, Woodland, Maine; 846,377 man-hours with 1 reportable injury.

3. P. H. Glatfelter Co., Spring Grove, Pa.; 1,079,752 man-hours with 2 reportable injuries.

Group C. 2. Southern Kraft Corp., Continental Div., York Haven, Pa.; 691,229 man-hours with 1 reportable injury.

3. Escanaba Paper Company, Escanaba, Mich.; 706,464 man-hours with 2 reportable injuries.

Division II (Remanufacturing)

2. Gaylor Container Corporation, St. Louis Container Plant, 1,038,307 man-hours with 2 reportable injuries.

3. Kimberly-Clark Corporation, Atlas Mill; 329,565 man-hours with 1 reportable injury.

TROPHY WINNERS

Division I (Pulp and Paper Mills)

Group A. Price Brothers & Co., Limited, Kenogami Paper Mills; 2,258,785 man-hours with 1 reportable injury.

Group B. Hoberg Paper Mills, Inc., Division "A", Green Bay, Wis.; 1,008,543 man-hours with 1 reportable injury.

Group C. Strathmore Paper Company, Woronoco Mills; 538,231 man-hours with no reportable injuries.

Group D. Sylva Paperboard Company, Sylva, N. C.; 337,656 man-hours with no reportable injuries.

Spaulding Fibre Company, Inc., Milton, N. H.; 190,367 man-hours with no reportable injuries.

United States Gypsum Company, North Kansas City, Mo.; 183,742 man-hours with no reportable injuries.

International Paper Company, Livermore Falls, Me.; 170,199 man-hours with no reportable injuries.

The Meed Corporation, Nashville, Tenn.; 169,686 man-hours with no reportable injuries.

Hollingsworth & Whitney Company, Madison, Me.; 128,572 man-hours with no reportable injuries.

International Paper Company, Riley, Me.; 116,074 man-hours with no reportable injuries.

Spaulding Fibre Company, Inc., Hayes, N.H.; 82,061 man-hours with no reportable injuries.

Division II (Remanufacturing)

Bay West Paper Company, Green Bay, Wis.; 97,663 man-hours with no reportable injuries.

New Literature

Grapples for pulpwood handling are described in a bulletin issued by The Owen Bucket Company, 550 Breakwater avenue, Cleveland, Ohio. It explains the new Owen design of grapple, with independent action of the tines. Included are many illustrations showing the application of this equipment in unloading pulpwood from boats, handling logs from piles and other uses.

Removing silica from high pressure boiler feed water is the subject of Bulletin No. 2377, issued by The Permutit Company, 330 West 42nd street, New York. It explains the Permutit "Mag-de, Sil" process in detail and how this process can be adapted to either hot or cold lime soda treatment, with either new or present equipment.

Elevators, conveyors, crushers, gates and miscellaneous equipment are described in a new 372-page catalogue No. 90, issued by C. O. Barlett & Snow Company, 6200 Howard avenue, Cleveland, Ohio. Complete details are included and the publication replaces former No. 50 and No. 74 catalogues.

Humidification is discussed in a bulletin issued by the Armstrong Machine Works, 818 Hoffman street, Three Rivers, Mich. It covers the cause and remedy of difficulties accompanying dry air during the winter heating season. Tables of desirable relative humidity for industrial processes and data on a new line of Armstrong steam type humidifiers, are included.

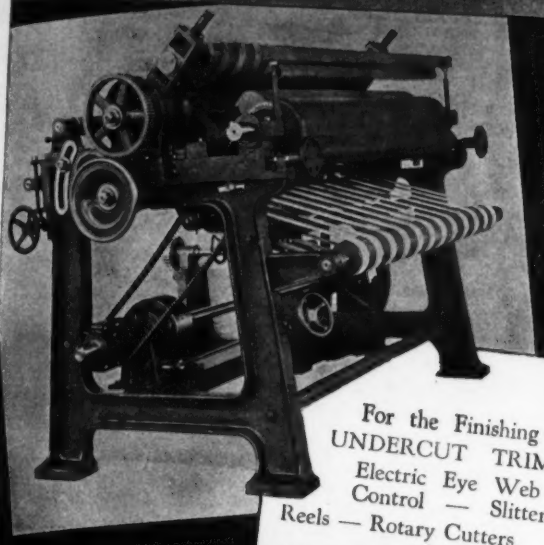
Cement cleaner, in concentrated powder form, is the subject of a folder issued by the Magnus Chemical Company, 13 South avenue, Garwood, N. J. Complete details of this non-inflammable, non-poisonous product, which contains no free alkali, are given.

Centrifugal pumps are described in a 24-page Bulletin No. 940, issued by the American Manganese Steel Division, of The American Brake Shoe and Foundry Company, Chicago Heights, Ill. The publication covers the company's complete line of horizontal and vertical shaft pumps, consisting of five types and in 18 sizes, from ¾ inch to 6 inches. Characteristic curves, construction and installation views and pump data are included.

Pressure filters for water purification are discussed in Bulletin W-210-B26, issued by the Worthington Pump and Machinery Corporation, Harrison, N. J. Information on details of construction, dimensions and capacities is included. The Worthington hot process water softener is described in Bulletin W-210-B27. This system for feed water purification utilizes correlated chemicals and heat to eliminate the scale-forming character of water. The component parts are described in detail.

Valves, pipe fittings and fire hydrants, are listed in a 239-page, cloth bound and index catalogue No. 63, issued by The Kennedy Valve Manufacturing Company, Elmira, N. Y. Specifications of Kennedy materials and a general description of the many types of valves, dimensions and suggestions on the selection and operation of valves, hydrants and pipe fittings are given.

SINCE 1828—FINER PAPER MILL MACHINES



PAPER MILL MACHINERY

Straight, Harper and Edwards Fourdriniers—For book, bond or fine tissues.

Cylinder and Wet Machines. Jordans — Pumps — Calenders "Rainstorm Shower Pipes."

●

Below:
THREE PLUNGER STUFF PUMP

For the Finishing Room
UNDERCUT TRIMMER
Electric Eye Web Edge Control — Slitters — Reels — Rotary Cutters.

●

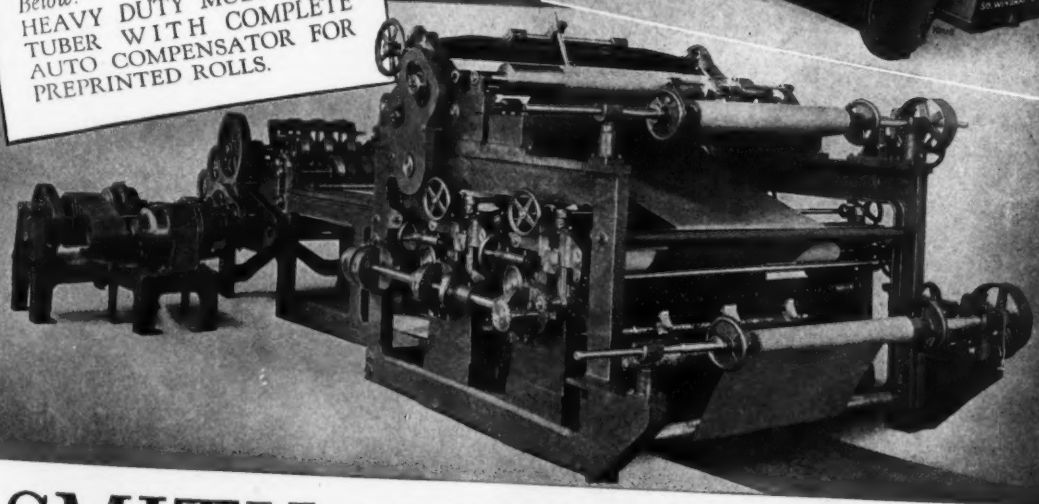
Above:
ROTARY SPOT CUTTER

FOR BAG PLANTS

Flat, square and satchel bottom bag machines—single and multi-wall pasted valve bag machines—tuber and bottomer type bag conveyors.

●

Below:
HEAVY DUTY MULTIWALL TUBER WITH COMPLETE AUTO COMPENSATOR FOR PREPRINTED ROLLS.



The SMITH & WINCHESTER
Manufacturing Company

PLANT AND OFFICES AT SOUTH WINDHAM, CONNECTICUT

FINANCIAL NEWS

New York Stock Exchange

High, Low and Last for Week Ending October 16, 1940

	High	Low	Last
A. P. W.	....	....	....
Armstrong Cork Co.	35⅜	34¾	35
Celotex Corp.	7½	7	7¼
Celotex Corp., pf.	61	60½	61
Certain-Teed Products Corp.	5	4¾	4⅞
Certain-Teed Products Corp., pf.	31½	29	30½
Champion Paper & Fibre Co.	20½	20	20½
Champion Paper & Fibre Co., pf.	101½	101½	101½
Congoleum-Nairn Co.	18	17⅜	17¾
Container Corp. of America	16¾	14¾	16¾
Continental-Diamond Fibre Co.	6½	6½	6½
Crown-Zellerbach Co.	15⅛	14⅜	15
Crown-Zellerbach Co., pf.	86¾	86½	86½
Flintkote Co.	17¼	16¾	17
Robert Gair	2⅞	2⅜	2⅜
Robert Gair, pf.	15¾	15¼	15¾
International Paper & Power	14⅝	13¾	14½
International Paper & Power, pf.	59⅜	57¾	59¼
Johns-Manville Corp.	69	67	68½
Johns-Manville Corp., pf.	126½	126	126
Kimberly Clark Corp.	33	33	33
MacAndrews & Forbes	30	28¾	30
MacAndrews & Forbes, pf.	130	130	130
Masonite Corp.	30	28¾	29½
Mead Corp.	8⅜	8	8
Mead Corp., pf.	66½	66½	66½
Paraffine Companies, Inc.	38⅜	38⅜	38⅜
Paraffine Companies, Inc., pf.	....	....	....
Rayonier, Inc.	16⅞	16¼	16¼
Rayonier, Inc., pf.	....	....	....
Ruberoid Co.	16½	16½	16½
Scott Paper Co.	42	41	41½
Scott Paper Co., pf.	110½	110	110½
Sutherland Paper Co.	24½	23½	23½
Union Bag & Paper Corp.	12	11½	11¾
United Paperboard Co.	3½	3¼	3¼
U. S. Gypsum Co.	77¾	74½	77¾
U. S. Gypsum Co., pf.	180	178	180

New York Curb Exchange

High, Low and Last for Week Ending October 16, 1940

	High	Low	Last
American Box Board Co.	4¾	4¼	4¾
Brown Co., pf.	22	22	22
Great Northern Paper	....	....	....
National Container Corp.	11	10⅞	11
St. Regis Paper Co.	2⅞	2⅝	2¾
St. Regis Paper Co., pf.	68¼	68	68¼
Taggart Corp.	....	....	....

Container Corp. Profits Up

Walter Paepcke, president of the Container Corporation of America reports earnings for the 3 months ended September 30, 1940 of $800,917, or $1.03 per share, compared with $253,060, or .32 per share for 1939. Earnings for 9 months, ended September 30, 1940, were $1,929,652, or $2.47 per share, compared with $285,308, or .36 per share for 1939. For the 12 months ended September 30, 1940, the corporation earned $3,093,243, or $3.96 per share, compared with $418,884, or .53 per share for 1939.

Earnings for 1940 are based on tax provision at 20.9 per cent. As the result of the recently enacted federal tax law it is estimated that additional taxes for the nine months will approximate $400,000.

Sales shipments for the first nine months of 1940 totaled $22,588,000, or an increase of 38.37 per cent over the same period in 1939.

Soundview Pulp Nets $509,438

The Soundview Pulp Company for the quarter ended September 30 reports a net profit of $509,438, or 99 cents a common share; for like 1939 quarter, $161,370, or 28 cents a share.

For nine months ended September 30, $1,670,661, or $3.23 a share; for like 1939 period, $293,752, or 42 cents a share.

Masonite Assets Rise

The pamphlet report of the Masonite Corporation for the fiscal year ended on August 31, 1939, just issued, shows current assets of $3,870,908, including $555,739 cash and current liabilities of $953,551, compared with current assets of $3,560,125, cash of $1,220,816 and current liabilities of $925,220 on August 31, 1939.

The net profit for the year of $1,659,348, the same as shown in the preliminary statement, compared with $1,163,050 for the preceding fiscal year. Net sales for the year were $9,057,648 compared with $7,233,390.

Ben Alexander, president, points out that inventories last year were built up to $1,708,629, the largest on record. A year earlier, inventories were $1,016,819.

The proxy statement accompanying the annual report proposes the election of John Alexander Jr., as a director to succeed the late William H. Mason. Other directors would be re-elected.

In the fiscal year ended August 31, 1940, the corporation paid $35,385 to Ben Alexander, $34,231 to R. G. Wallace, vice president, and $29,231 to John H. Thickens, vice president.

Champion Elects Officers

Stockholders of the Champion Paper and Fibre Company, Hamilton, Ohio, elected a board of directors, last week, which in turn elected officers of the company and declared two dividends.

The board members include Charles C. Benedict, Henry S. Bowers, H. G. Pounsford, H. T. Randall, R. B. Robertson, H. W. Suter, A. Thomson Jr., L. G. Thomson and Scott Zoller.

The officers are L. G. Thomson, president; R. B. Robertson, executive vice president; H. W. Suter, vice president and general sales manager; R. B. Robertson Jr., vice president; Clarke Marion, vice president; H. T. Randall, vice president; A. Thomson Jr., vice president; Scott Zoller, secretary and treasurer; J. L. Henson, comptroller and assistant secretary; C. S. Bryant, assistant treasurer, and W. J. Damtoft, assistant secretary.

Dividends of $1.50 a share on preferred stock, payable January 1, 1941, to stockholders of record December 14, 1940, and of 25 cents a share on common stock, payable December 16, 1940, to holders of record November 30, 1940, were declared.

Rolland Company Increases Dividend

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., October 14, 1940—The Rolland Paper Company has declared a dividend on the common stock of 30 cents a share, payable November 15, to holders of record November 5. Previous payment was 15 cents, on August 15 last. Company also declared the regular quarterly dividend on the preferred stock of $1.50, payable December 2 to holders of record November 15.

Indianapolis More Optimistic

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., October 14, 1940—A steady demand for most items in the paper field continued to feature the local market last week. There seems to be slightly more optimism as the fall season gets under way and prices in all lines are firmly held. Credit conditions also are in better shape than they have been for some time. The amount of cash and carry orders, however, continues large and there is no disposition on the part of the trade to be lax in credit matters.

The fine paper market continues about the same it has been for the last month. Local printers are taking immediate requirements and some of the larger houses report quite a bit of work in prospect. General volume is about the same it was a year ago at this time. Local dealers report prices firm with no indication of any changes of note.

Demand for building papers and roofing continues good, with the fall season promising to show even more activity. In many communities the building season has been quite a bit better than it was a year ago, though Indianapolis itself is lagging somewhat behind the volume of last year. Weather conditions will have much to do with the late fall demand. Given an open and late winter, it is expected that construction will continue throughout the entire winter season. Dealers have relatively small stocks on hand, but they are well balanced and buying is strictly on a hand to mouth basis.

The paper box demand continues good and factories continue to operate almost to capacity. Christmas buying is well underway and will be larger than a year ago, judging from present business trends.

Paper bags and wrapping papers continue to be in demand. A larger volume of retail business is responsible for this. Kraft is firm and no changes are expected.

Demand for paper stock appeared slightly more active last week with prices firm, but unchanged. Rag demand was a trifle weak with mills becoming more cautious in their requirements. However, prices were unchanged.

To Present Papers on Plastics

A series of meetings wil be sponsored by the Subdivision on Rubber and Plastics at the annual meeting of the American Society of Mechanical Engineers to be held at Hotel Astor, during the week of December 2. The papers to be presented at the Rubber and Plastics meetings, as well as the dates and times, are:

Session 1—December 5—9:30 A.M.

1. "Design and Application of Phenolic Resin Asbestos Compositions in Corrosion Resistant Equipment," by W. H. Adams, Haveg Corp., Newark, Del.

2. "Rubber Springs—Compression Loading," by J. F. Downie Smith, Research Division, United Shoe Machinery Corp., Beverly, Mass.

Session 2—December 5—2:00 P.M.

1. "The Creep of Natural and Synthetic Rubber Compounds in Shear," by Ivan Gazdik and S. H. Hahn, B. F. Goodrich Co., Akron, O.

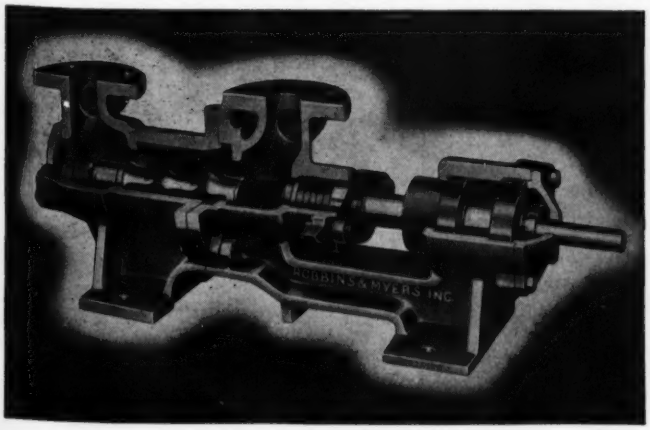
2. "Notes on the Creep of Neoprene in Shear," by F. L. Yerzley, Rubber Chemicals Division, E. I. du Pont de Nemours & Co., Inc., Wilmington, Del.

R & M MOYNO PUMP

Assures Greater Uniformity of Feed to Coating Rolls

The pumping mechanism is the answer. It is simply a single-thread helical rotor turning within a double-threaded helical stator. The resulting action is the same as would be obtained by moving a piston at constant speed through a cylinder of infinite length.

As the rolling action of the rotor is continuous with no lost motion and the displacement cross-section is constant, slip is delivered to the coating rolls from a Moyno Pump with a uniformity that cannot be obtained with any other equipment.



Although the Moyno Slip Pump is as positive in displacement as a piston pump, it is absolutely valveless. Thus, all troubles that might be caused by worn, clogged, leaking or sticking valves are totally eliminated, while the rotor itself definitely seals against forward or backward flow of slip. The valveless feature of the R & M Moyno Slip Pump contributes greatly to its unusually long life in paper industry service.

Complete details on this remarkable pump will be sent you immediately upon receipt of your request. This places you under no obligation. Simply ask for R & M Moyno Slip Pump Folder No. 1753.

ROBBINS & MYERS, Inc.

MOYNO PUMP DIVISION

SPRINGFIELD, OHIO

CONSTRUCTION NEWS

Fort Worth, Tex.—The Southwest Corrugated Box company, Fort Worth, manufacturer of corrugated boxes and containers, has approved plans for new local plant at Eighth, Stanley and Arlington streets, where site recently was selected. It will be one-story, 185 x 350 feet, reported to cost about $100,000, with equipment. General contract for erection has been let to Thomas S. Byrne, Fort Worth National Bank Building, and work is scheduled to begin at once. An award for plumbing, heating and electrical work has been made to the General Engineering Company, 301 West 13th street, Fort Worth. H. Wolaver, Tulsa Loan Building, Tulsa, Okla., is architect.

Joliet, Ill.—The Superior Wall Paper Mills, Inc., 900 East Washington street, manufacturer of wall papers, etc., has taken out a permit for one-story addition. No estimate of cost announced. Erection contract has been awarded to Hansen & Petersen, Joliet, and work will proceed at early date.

Meridian, Miss.—The Flintkote Company, 50 West 50th street, New York, N. Y., manufacturer of roll roofing products, insulating board specialties, etc., will increase the size of new mill now in course of erection on site near Meridian, and will provide new buildings and equipment to advance capacity rating to about 100,000,000 lineal feet of wood fiber insulating board and wall board specialties per annum. Present main building, now nearing completion, will be one-story, 300 x 1200 feet, with several auxiliary structures, and is estimated to cost about $2,000,000, with machinery, as previously noted in these columns. New structures and machinery are estimated to cost about $1,000,000 additional. It is understood that contract will be let to the Rust Engineering Company, Clark Building, Pittsburgh, Pa., and Martin Building, Birmingham, Ala., which is now handling award for the initial plant. First units are scheduled to be ready for production early in 1941. The Mississippi Power Company, Meridian, will furnish power supply for mill operations, extending transmission line to plant site for this purpose, where power substation will be located.

Los Angeles, Calif.—The Royal Paper Box Company, recently organized with capital of $10,000, plans operation of local plant for the manufacture of paper boxes and containers. Incorporators of new company include Richard A. Kleinrook and Samuel Mirman, 210 West Seventh street, Los Angeles. Last noted is company representative.

Chicago, Ill.— The United Wall Paper Factories, Inc., 3330 West Fillmore street, manufacturer of wall papers, is consolidating all production at its three mills at Chicago, Joliet, Ill., and York, Pa., respectively, and will dispose of its former eastern mills at Hudson Falls, N. Y., and Jersey City, N. J., placing these two properties on the market at once. The last noted plant has been in use recently for storage and distributing service, while the Hudson Falls unit has been inactive for some time past.

Lynchburg, Va.—The Mead Corporation, Heald Division, manufacturer of paper board products, has awarded general contract to the C. W. Hancock & Sons Company, Allied Arts Building, Lynchburg, for proposed new addition to mill, recently referred to in these columns, and for which superstructure will proceed at once. It will be one-story, about 100 x 300 feet, and will be used for expansion in laminated board-manufacturing division. A new laminating machine and auxiliary equipment will be installed, as well as traveling crane for handling paper rolls and other mechanical-handling facilities. Cost reported close to $100,000, with equipment. Main offices of company are at Chillicothe, Ohio.

Amcelle, Md.—The Celanese Corporation of America, Inc., 180 Madison avenue, New York, N. Y., manufacturer of rayon products, has completed plans for new addition to mill at Amcelle, near Cumberland, consisting of a three-story and basement structure, 100 x 400 feet, reported to cost over $200,000, with equipment. Bids have been asked on general contract and erection is scheduled to be carried out this fall.

Marion, N. C.—The Etta Paper Box Company Burgin street, manufacturer of folding and other paper boxes and containers, has plans under way for new one-story addition to plant, estimated to cost about $25,000, with equipment. It is proposed to begin work soon.

Bellingham, Wash.—The Puget Sound Pulp and Timber Company, manufacturer of unbleached sulphite fiber, has plans maturing for proposed new addition to mill, consisting of several units, to be equipped to expand capacity about one-third, or from 100,000 to 150,000 tons per annum, as recently noted in these columns. It is proposed to have structures completed and ready for service in 1941. Cost reported about $1,500,000, including machinery.

Detroit, Mich.—The Eagle Paper Box Company has been organized with capital of $30,000, to take over and succeed to company of same name at 1826 Sixth street, manufacturer of set-up paper boxes and containers. Operations will be continued as heretofore. Ernest J. Gans, 580 Hollywood avenue, Detroit, is one of the incorporators of the new company.

Nitro, W. Va.—The American Viscose Corporation, Delaware Trust Building, Wilmington, Del., manufacturer of cellulose rayon products, has awarded general contract to the Wark Company, 1700 Sansom street, for new three-story addition to branch mill at Nitro, 30 x 75 feet, reported to cost over $50,000, with equipment. Work will be placed under way at once. The Ballinger Company, 105 South Twelfth street, Philadelphia, is architect and engineer.

Peshtigo, Wis.—The Badger Paper Mills, Inc., manufacturer of tissue and kindred paper stocks, waxed and other processed papers, has foundations under way for new addition to mill, previously referred to in these columns, to be two-story, instead of one-story, as formerly stated, about 130 x 210 feet, reported to cost over $100,000, with equipment. Work also will include a one-story building, 24 x 40 feet, for garage service. Edward H. Meyer Construction Company, 75 Main Street, Oshkosh, Wis., has general erection contract; a sub-contract for

structural steel framing has been awarded to the Vulcan Manufacturing Company, Fond du Lac, Wis.

New Companies, Etc.

Jamestown, N. Y.—The Jamestown Shipping Case Corporation has been incorporated with capital of $35,000, to manufacture and deal in corrugated boxes and containers. New company is represented by Rogerson, Clary & Hewes, Hotel Jamestown Office Building, Jamestown, attorneys.

Chicago, Ill.—The Atlantic Paper and Supply Company, Inc., has been chartered with capital of $10,000, to deal in waste paper, etc. The incorporators are C. and Max Barancik. Registered office is at 363 East 23rd street. New company is represented by Benjamin Mark, 188 West Randolph street, attorney.

St. Louis, Mo.—The Container Manufacturing Corporation has been organized to manufacture corrugated boxes and containers. Jack Morley, 4965 Wadada street, St. Louis, is principal incorporator and representative.

New York, N. Y.—Paper Processes, Inc., has been incorporated with capital of ..26,000, to manufacture paper specialties, engage in paper research, etc. New company is represented by Cravath, DeGersdorff, Swaine & Wood, 15 Broad street, attorneys.

Kalamazoo TAPPI Meets

The Kalamazoo Valley Section of the Technical Association of the Pulp and Paper Industry met at the Park-American Hotel, Kalamazoo, Mich., Thursday, October 3.

W. K. Kidder of the Bryant Paper Company presided as chairman.

J. P. Strasser of the Stein, Hall Manufacturing Company, Chicago, talked on Starch and Papermaking. Mr. Strasser described various kinds of starch and stressed the importance of adding the starch on the machine side of the jordans so that its value as a binder will not be destroyed. He also pointed out that there was available a sufficient quantity and variety of starches in this country to met requirements during the present wartime period.

Those present included: Ralph Atkins, M. R. Bailey, W. M. Bain, Roy L. Barton, John E. Bauman, Harry C. Bradford, P. S. Cade, D. S. Chamberlin, Fred L. Chappell, Arthur A. Coffin, A. W. Cole, F. Elliott, L. S. Farrell, Merton S. Fogerty, B. E. Freeman, R. D. Freeman, Charles Gardner, Henry M. Gibb, John W. Gilkey, Paul de Guehery, John Hartman, Jack Hartung, W. F. Hathaway, A. E. Hays, John A. Heenan, G. T. Ingling, M. I. Kerin, W. Kent Kidder, Myron Kin, W. A. Kirkpatrick, Howard F. Kleinman, Frank Libby, Howard Merkle, H. Nendorf, Russell B. Nunemaker, A. Wm. Riedel, Martin J. Roberts, John L. Russell, Charles F. Somerville, Jr., J. P. Strasser, W. S. Taylor, R. M. Upright, Arthur Weinland, William Wessel, Frank Whittington, J. G. Wickens and Merle R. Wilkins.

Wiberg-Moore Nuptials

Edgar L. Wiberg, chemist for the Central Paper Company, Muskegon, Mich., and Miss Mary Moore of Menasha, Wis., were married Monday, October 7, at Dubuque, Iowa. The couple will reside in Muskegon.

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The New York Public Library

"Your recent book - - - - has been received and read with a great deal of interest. It covers the paper and pulp manufacturing situation very thoroughly and, what is especially important in this day of rapid changes, it is up to date."

(signed) S. B. Jones, of the
West Virginia Pulp and Paper Co.

" - - - - The book contains a lot of good material and should be of real interest to anyone connected with the Paper Industry."

(signed) B. E. Reeves, Vice Pres. & Manager
The Alling & Cory Company, Rochester, N. Y.

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EDITOR

Vol. 111 October 17, 1940 No. 16

COMING EVENTS IN PAPER INDUSTRY

NEW ENGLAND SECTION. Technical Association of the Pulp and Paper Industry—Third Friday of each month at the Roger Smith Hotel, Holyoke, Mass.

DELAWARE VALLEY SECTION. Technical Association of the Pulp and Paper Industry—Second Friday of each month at the Engineers Club, Philadelphia, Pa.

LAKE STATES SECTION. Technical Association of the Pulp and Paper Industry—Second Tuesday of each month at the Conway Hotel, Appleton, Wis.

KALAMAZOO VALLEY SECTION. Technical Association of the Pulp and Paper Industry—First Thursday of each month at the Park, American Hotel, Kalamazoo, Mich.

THE NEW REVENUE ACT

A complicated and controversial tax measure became a law when President Roosevelt signed the second revenue act on October 9, which consists in greater part of amendment of the internal revenue code and now known as the "Excess Profits Tax Act of 1940." The emergency "Excess Profits Tax", enacted in 1933 in the National Industry Recovery Act, is retained, although the name has been changed to "Declared Value Excess Profits Tax."

This billion-dollar excess profits measure, which has been sharply attacked by conferees in the Senate contains four major provisions. (1) To prevent "a new crop of millionaires" growing out of the national defense program, through a heavy tax on excess corporate profits. (2) Provision to encourage the investment of private capital in new plant facilities for rearmament, through accelerated allowances for tax-free amortization. (3) Provision for a system of service insurance for National Guardsmen and selected trainees now being called into active military service, through the creation of a separate insurance fund. (4) Provision for an estimated addition of revenue of $500,000,000 next year and $1,000,000,000 annually thereafter to help defray the cost of the national defense system.

In commenting on the bill, Senator Vandenberg said that, "The bill fails to approach even the rim of an assault on so-called war millions. It does not even approach the status of a revenue bill in light of the government's present finance needs." Senator George asserted that, "There is no possible justification in an excess profits tax bill for the taxing of earnings which are clearly normal, but we are compelled to agree to reduce the normal earnings in the period not fairly representative of corporate earnings in this country by 5 per cent, in order to effect an agreement with the House confrees. For that reason, and for that reason only, I agreed to this particular provision of the bill."

In criticizing the dollar accounting plan, Senator George said: "On this floor I offered the amendment which would have imposed the excess profits tax, not upon brackets arranged according to income of a corporation, but upon the proper relationship between the earnings and profits and the excess profits credit. While I have agreed in order to obtain a report, I want my record to be perfectly clear that this arrangement of the excess profits upon a mere dollar bracket basis is one of the most unsound, one of the most inequitable and one of the most indefensible provisions that ever was written into a harsh bill such as the Excess Profits Tax Bill and it is done for the sole purpose of taxing bigness, according to somebody's idea of bigness, without any possible consideration of how the burden falls upon the individual owner of a stock which must be made less valuable and less productive under such a crude arrangement as this."

In the light shed on this piece of legislation by many who opposed it, the new tax law is likely to have injurious effects on business. A point to this criticism is found in the increase of 3.1 per cent in the normal income tax of corporations earning more than $25,000 a year, which is not, of course, related to excess profits. The effective income-tax rate on this class of corporations is placed at 24 per cent, made up of 19 per cent provided in permanent law, the temporary 10 per cent "supertax" imposed by the First Revenue Act of 1940 and the increase in the second tax act just created. The excess-profits taxes are imposed according to a graduated scale, ranging from 25 per cent on the first $20,000 of excessive earnings up to 50 per cent on all above $500,000 a year.

In discussing features in taxes on excess profits in *The New York Times,* Godfrey N. Nelson, lawyer, tax expert and secretary of The New York Times Company pointed out that "there are now effective two excess profits taxes; one levying graduated rates upon corporate earnings in excess of 10 per cent of the capital stock value declared by the corporation; the other at graduated rates upon earnings in excess of a specific exemption of $5,000 and either the average earnings for the pre-defense period or 8 per cent of the invested capital, with certain other adjustments as provided by law. The so-called Declared Value Excess Profits Tax Law does not permit of the filing of consolidated returns; the 1940 Excess Profits Tax Law generally will permit of the option to file consolidated returns in lieu of separate returns. Consolidated returns are not permitted in respect to the income tax, however, except as to railroad corporations and Pan-American trade corporations. . . . The advantages of making consolidated returns under the new profits tax are gen-

erally much less important to corporations than those under the old law. While the excess profits credit compares favorably with that allowed under the earlier acts, the substitution of dollar amounts in the tax bracktes for percentages of invested capital renders the consolidated form of return less attractive. In point of amount of invested capital of an affiliated group of corporations the consolidated returns has little advantage over separate returns. Intercompany investments being eliminated in a consolidated return, and the stock investment being an inadmissible asset in the separate return, the net amount of invested capital is unchanged. . . . The main advantage to be obtained from filing consolidated excess profits tax returns, therefore, is the right to offset losses of members of an affiliated group against the income of other members of the group. These and other variances in the effect of separate and consolidated returns make it necessary to determine by actual test which method result in the lesser amount of tax".

In commenting on the new revenue act the *Washington Review* published by the Chamber of Commerce of the United States said: "There must be a change in the spirit with which the formulation of such legislation is approached. It has been largely one of hostility to business. Instead of producing, in an equitable manner, revenues for the government, even huge revenues, it endangers free enterprise and the financial position of the government. The unnecessarily delayed provisions for amortization of new investments in defense facilities, while not all they should be, may help the country to regain some of the lost time in the vital effort to equip our military establishment."

Powell River Co. Makes New Line

VANCOUVER, B. C., October 14, 1940—Production of building paper has now been commenced at Powell River, B. C., by the Powell River Company.

These building papers are being manufactured in five grades. The first grade is extra strong and of a heavy kraft construction combined with uniform film of asphalt. The second is a medium strength sulphite kraft paper. The third is a standard strength sulphite paper suitable for practically all inside applications. The fourth product of the firm is a ready colored vaor-proof buff-tone inside sheathing and the fifth is a medium weight vapor-proof board sheathing made from four sheets of heavy paper board cemented together with three layers of asphalt.

The new building papers of the Powell River Company are manufactured by cementing two sheets of paper together with a water-proof insulated asphalt which is out of sight and touch. The new products are under constant study by the technical and research staff of the company.

According to an announcement by W. D. Gray, general manager of Canada Roof Products Ltd., 2627 Arbutus street, Vancouver, B. C., his firm has been appointed sales agents for British Columbia and Alberta for the new building paper.

Production Ratio Report

These statistics are based upon paper production reports to the American Paper and Pulp Association.

COMPARATIVE MONTHLY SUMMARIES[1]

Months	1940	1939	1938	1937	1936	1935	1934
January	90.2%	77.5%	63.9%	90.3%	76.1%	65.8%	.....
February	86.2%	81.7%	68.7%	90.1%	77.9%	70.0%	.....
March	83.9%	84.0%	69.6%	90.3%	76.0%	70.5%	.....
April	86.3%	82.9%	68.3%	92.1%	82.3%	70.0%	.....
May	91.7%	80.2%	69.0%	90.6%	81.6%	69.4%	.....
June	93.8%	79.7%	66.0%	87.3%	80.7%	72.3%	.....
July	87.1%	75.2%	72.0%	81.8%	77.3%	64.9%	.....
August	87.3%	82.9%	77.2%	82.9%	81.5%	70.9%	.....
September	83.6%	88.7%	76.3%	78.6%	80.5%	71.9%	58.2%
October	.....	96.6%	82.5%	73.5%	87.6%	75.6%	64.7%
November	.....	97.2%	79.6%	61.9%	88.0%	75.3%	61.7%
December	.....	91.1%	74.4%	54.5%	85.9%	71.2%	59.6%
Year Average	.....	84.9%	72.3%	80.6%	81.3%	70.5%	.....
First 40 weeks	88.0%	81.8%	70.4%	86.6%	79.6%	69.6%	.....

COMPARATIVE WEEKLY SUMMARIES[1]

CURRENT WEEKS, 1940		CORRESPONDING WEEKS, 1939	
August 31	85.7%	September 2	85.0%
Sept. 7 (Holiday Week)	71.0%	September 9	74.0%
September 14	86.4%	September 16	81.8%
September 21	87.4%	September 23	93.4%
September 28	89.6%	September 30	95.7%
*October 5	88.7%	October 7	93.0%

The following statistics show the number of mills reporting by ratio groups:

	Number of Mills Reporting—Current Weeks					
Ratio Limits	Aug. 31, 1940	Sept. 7, 1940	Sept. 14, 1940	Sept. 21, 1940	Sept. 28, 1940	Oct. 5, 1940
0% to 50%	53	82	52	49	41	36
51% to 100%	243	212	243	242	237	194
Total Mills Reporting	296	294	295	291	278	230

PAPERBOARD OPERATING RATIOS

Per cents of operation based on "Inch-Hours" reported to the National Paperboard Association.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July
1936	62%	67%	67%	70%	69%	70%	69%
1937	80%	86%	86%	88%	85%	77%	66%
1938	54%	60%	61%	57%	58%	56%	57%
1939	60%	67%	71%	69%	64%	67%	63%
1940	71%	70%	69%	70%	76%	79%	72%

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1936	75%	78%	82%	80%	74%	72%
1937	74%	69%	65%	55%	45%	73%
1938	66%	66%	70%	65%	59%	61%
1939	72%	74%	84%	81%	71%	70%
1940	74%	72%	....	....	....	....

Week end. Aug. 31, 1940—74%
Week end. Sept. 7, 1940—60%
Week end. Sept. 14, 1940—76%
Week end. Sept. 21, 1940—74%
Week end. Sept. 28, 1940—78%
Week end. Oct. 5, 1940—78%

[1] Production-capacity ratios are based upon six-day capacity ratings which are adjusted periodically to correspond with the ratings reported by individual companies. Ratios are subject to revision until all reports are received.

* Preliminary figure.

Russia's Pulp Capacity 1,370,000 Tons

Capacity of Soviet Russian wood pulp mills now reaches 1,370,000 metric tons, according to recent trade estimates, the Forest Products Division of the Commerce Department reported today.

The peace treaty with Finland added 370,000 tons of chemical and 14,000 tons of mechanical pulp to the Russian output, and annexation of the Baltic States brought in an additional 161,000 tons of chemical and 25,000 tons of mechanical pulp. Before these additions, Russian wood pulp capacity was estimated at 375,000 tons for chemical and 425,000 tons for mechanical pulp.

Roanoke Paper Co. Appointed Agent

The Eastern Corporation, Bangor, Me., announces that the Roanoke Paper Company, Inc., Roanoke, Va., has been appointed as its merchant agent in Roanoke, Va.

They Started Something!

THE MEN who devoted their efforts to forwarding the science of photography —from its rudimentary beginning in the *camera obscura* in 1569 to its highly developed form today—made striking contributions both to human happiness and to industrial progress. Photography today is a hobby that has brought greater pleasure to millions of people — and through the medium of the motion picture it entertains countless millions more. It is the foundation of giant industries, and its use has opened new fields of knowledge for almost every other industry. High-speed photography to study the motion of machines, microphotography and X-ray photography—these are a few of its major industrial applications.

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Section of the
Technical Association of the Pulp and Paper Industry

Edited by Ronald G. Macdonald, Secretary

Systematic Color Designations for Paper

By Deane B. Judd[1]

Abstract

The construction at the National Bureau of Standards of a system of color designations for drugs and chemicals in accord with recommendations by the Inter-Society Color Council raises the question whether a similar system, or the same system, would be worth while for description of paper color. The ISCC-NBS color designations are combinations of the simplest and most widely used color names: red, orange, brown, yellow, olive, green, blue, purple, pink, black, gray, and white; with such common and easily understood modifiers as light, medium, dark, weak, moderate, strong, vivid, pale, and deep. There are slightly more than 300 such designations, each one applying to a defined range of color, and, taken together, covering all colors.

As an aid to the initiation of cooperative study embracing all branches of the paper industry, the ISCC-NBS method of designating colors is described in detail. These designations have been found for about one-fifth of the colors given in the Blue Book Manual issued in 1936 by the Grading Committee of the Groundwood Paper Manufacturers Association, and they have also been found for samples of bond paper supplied by 4 companies and known by 15 traditional paper-color names. These results serve to illustrate the descriptive quality of the ISCC-NBS color designations, and they also indicate how closely the traditional color names are followed for bond papers, and how wide the color departures may be between bond-paper terms and groundwood-paper terms.

Exact specification of color requires a numerical system; but, for approximate description of color, thousands of literary expressions have sprung up *(1)*. Many of these terms give little suggestion to the uninitiated as to what the color is. Some of the terms have only a short life, and others are used only by a restricted group. As a result there have appeared a whole series of color charts issued for the purpose of giving information about the meaning of these several thousands of color names *(2)*; i.e., although the names were originally devised to describe colors, we now have to have colors to describe the names. Probably a few hundred color names are all that can be expected to have any generally understood meaning apart from actual samples of color.

As a result of cooperative activity extending over a period of years, there has recently appeared the description of a method of designating colors *(3)*. Three organizations cooperated in its development: the American Pharmaceutical Association, the Inter-Society Color Council (I. S. C. C.) and the National Bureau of Standards; it is known as the ISCC-NBS method of designating colors. This method is intended to fulfill the requirements laid down in 1931 by E. N. Gathercoal, chairman of the I. S. C. C.; i.e., the method is intended to provide designations "sufficiently standardized as to be acceptable to science, sufficiently broad to be appreciated and usable by science, art, and industry; and sufficiently commonplace to be understood at least in a general way by the whole public."

The ISCC-NBS Method of Designating Colors

The designation for all but very grayish colors consists of a hue name *(red, green, blue, purple,* and so on) preceded by appropriate modifiers (such as *weak, moderate, strong, light, medium* and *dark)*. The designation for very grayish colors consists of a noun *(white, gray,* or *black)* with modifiers appropriate to the lightness and hue of the colors (such as *dark reddish gray* or *yellowish white)*.

The relationships between the names can best be understood by a consideration of the psychological color solid. The dimensions of this solid are hue, lightness, and saturation *(see* Fig. 1). Since the color of any *matte* opaque surface in daylight is represented by some point in it, it is often called the surface-color solid. Lightness starts at zero for black, represented at the bottom of the figure, and is measured by distance from the base plane, being a maximum for white represented at the top of the figure. Hue is represented by angle about the black-white axis, giving the closed series: *red, yellow, green, blue, purple,* and *red,* with their intermediates. Saturation is represented by distance from the black-white axis, being zero for black, white and the intermediate grays, and increasing toward the boundary of the surface-color solid on which would be represented the most vivid colors producible from reflecting surfaces viewed in daylight.

Colors of one hue are, therefore, represented in the solid by points falling in a single one of the vertical planes extending outward from the black-white axis. Colors of one lightness are represented by points in any one horizontal plane; and colors of one satura-

[1] Physicist, U. S. Department of Commerce, National Bureau of Standards, Washington.

tion are represented by points in any one of the series of right circular cylinders concentric about the black-white axis.

The hue name of the color designation is intended to indicate a range of hue angle in the color solid, and other words in the designation are to indicate ranges of lightness and saturation for this hue range. The basic hue names are *red, orange, brown, yellow, olive, green, blue, purple,* and *pink.* Table I gives the complete list of hue names including the compounds. Figure 2 gives the system of modifiers. Deviations from the moderate range in lightness are indicated by the terms, *light* and *dark;* deviations in saturation by the terms, *weak, strong,* and *vivid;* and deviations in both lightness and saturation, by the terms, *pale, deep, dusky,* and *brilliant.* The whole color designation, hue name and modifiers, therefore, defines a block of the surface-color solid bounded by vertical planes of constant hue, horizontal planes of constant lightness, and cylindrical surfaces of constant saturation. There are a few more than 300 such blocks in addition to the 5 cylindrical blocks for black, grays, and white. Figure 3 shows a sketch of the blocks for colors of one hue, purple. Every possible color is represented in one or another of such blocks, therefore, this system gives a designation for every color. The complete set of designations involves 12 color names and 12 modifiers, making but 24 basic terms.

TABLE I.—HUE NAMES OF THE ISCC-NBS METHOD OF DESIGNATING COLORS

Hue names applying to dark colors only	Hue names applying chiefly to colors of medium lightness	Hue names applying to light colors only
	Red purple	Purplish pink
Reddish brown	Purplish red	Pink
Brown	Red	
Yellowish brown	Reddish orange	Orange pink
Olive brown	Orange	
Olive	Yellowish orange	
Olive green	Yellow	
	Greenish yellow	
	Yellow green	
Hue names applying to colors of all lightnesses		
	Yellowish green	
	Green	
	Bluish green	
	Blue green	
	Greenish blue	
	Blue	
	Purplish blue	
	Bluish purple	
	Purple	
	Reddish purple	

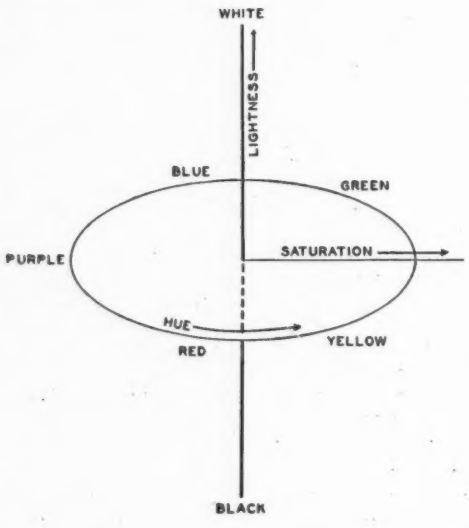

FIG. 1.
Dimensions of the Surface-Color Solid.

FIG. 2.
System of Modifiers. The ISCC-NBS Color Designation, Except for Very Grayish Colors, Consists of One of the Hue Names Listed in Table I Combined with One of These Modifiers.

A frequent objection to this system of color designations is that each designation refers to a group of distinguishable colors rather than to a single color. Since there are about 10 million surface-colors distinguishable in daylight by the trained human eye and only a few more than 300 designations in this system, it is obvious that the average color range denoted by a single designation must contain more than 30,000 distinguishable colors. If it is important to make distinctions among some of these thousands of colors bearing identical designations by this system, resort must be had to one of the many numerical systems of color specification available. Preeminent among these is the colorimetric coordinate system recommended in 1931 by the International Commission on Illumination (I.C.I.) *(4)*, and recommended in 1938 as a tentative standard for the color of pulp and paper by TAPPI *(5)*. Since any one group of about 30,000 colors known by one name touches in the surface-color solid several other such groups, it follows also that there are many pairs that can scarcely be distinguished which receive different designations. This property is an unavoidable result of dividing the surface-color solid into an arbitrary number of blocks, one for each designation. Analogous disadvantages result from identifying the time of events according to date; two events occurring on the same date may

be separated by many hours, but on the other hand two scarcely separable midnight events may have to be assigned different dates. Just as identifying the time of an event by giving the date has proved to be useful, so may we expect a method having similar disadvantages also to be useful for designating colors.

The boundaries defining the approximately 300 color ranges have been adjusted in as close accord as possible with the common use of these terms. The adjustment has been carried out by the committees of the I. S. C. C. with reference to the color standards of the Munsell Book of Color *(6)*. These standards are arranged according to Munsell hue, Munsell value, and Munsell chroma which are intended to be practical evaluations of the surface-color attributes: hue, lightness, and saturation, respectively. For the present, the definition of the color ranges is given only in terms of Munsell hue, value and chroma *(3)*.

The way to find the ISCC-NBS designation is first to obtain the Munsell equivalent of it by comparison with the standards in the Munsell Book of Color *(6)*, then read the ISCC-NBS color designation directly from the name charts *(3)*. Figure 4 shows the form of one of the simpler of these name charts; in this chart which applies to the Munsell hue range 3P to 7P, the colors all have the hue name, purple, suggested by the Munsell system. Munsell hue name has, however, not always been followed; for some Munsell hue ranges several hue names (such as orange pink, orange, and brown) have been adopted to accord with common usage (instead of the single Munsell hue name, yellow-red). These more complicated charts may be read as conveniently as the simple one shown in Fig. 4 which is adapted from one in a preliminary account of the ISCC-NBS method of designating colors *(7)*.

The ISCC-NBS method of designating colors has been approved for the colors of drugs and chemicals by the voting delegates to the I. S. C. C. for a number of national associations of which your association (TAPPI) is one. The council has recommended this method tentatively for general use. As rapidly as particular valid uses are discovered, other than for the colors of drugs and chemicals, it is planned to extend the recommendation to such uses. The question whether the Council should recommend this method for paper colors will undoubtedly be put to your delegates in the near future.

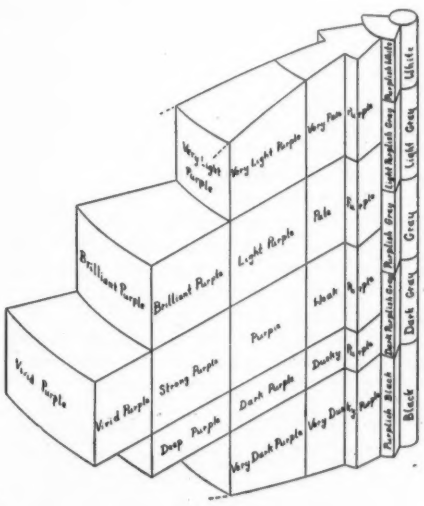

FIG. 3.
Sketch of the Blocks Forming a Portion of the Surface-Color Solid Including Purples, Grays, Black, and White.

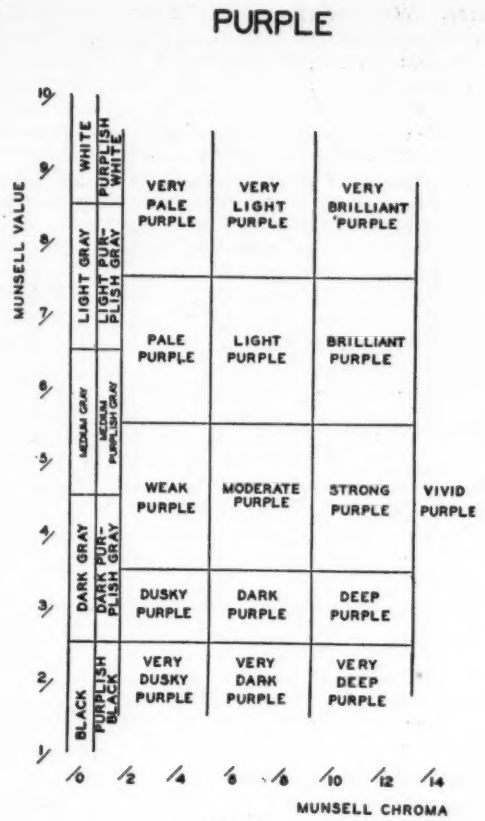

FIG. 4.
Name Chart for Purple Colors. This Chart Applies to the Munsell Hue Range 3P to 7P; (3). It Shows How the ISCC-NBS Color Designation of a Sample May Be Found from Its Munsell Notation.

Factors Tending to Diversify Color Designations

In considering how the ISCC-NBS method of designating colors may be used for the description of the colors of paper, it is convenient first to discuss some of the factors which tend to diversify color designations and which, therefore, oppose the general adoption of a standardized system. Some of these factors are strong and legitimate; by pointing out cases to which the method is not applicable we may hope to succeed better in making clear those to which it is. Some of the factors are weak and result in gains that are only temporary or individual; collective action in support of a standardized system of color designations for cases resulting from these factors would in the long run eliminate confusion and loss. Still other factors are not well understood; these may deserve study by a committee of men familiar with the complexities of the pulp and paper industry.

Classes of Things Having Colors of Restricted Range

There is an unavoidable urge in the description of a class of things that have colors of restricted range to use color names for the outermost colors which really apply to colors definitely beyond the range. An example will make this rather bleak generality

clear. Wood colors extend over but a small fraction of the surface-color solid, well away from the outer bounding surface. There is no truly white wood, for example. But we have the commonly used expression *white* pine as distinct from *yellow* pine, and *white* oak as distinct from *red* and *black* oak. These color designations are too firm and useful a part of our language to be superseded. It would probably be a waste of time if people were to say *pale yellow* pine as distinct from *moderate yellow* pine in ordinary conversation; or *yellowish gray* oak as distinct from *light reddish brown* oak. So it would be more than wasteful to expend effort to try to make them do it.

On the other hand the gain in economy of language is sometimes outweighed by the necessity of preventing the color terms from leading to confusion. Thus, crude vegetable drugs generally fall within a restricted range of color varying from the weak olive brown characteristic of withered leaves to the pale brown characteristic of dried leaves. For years, however, drugs of weak olive brown color were designated in the U. S. Pharmacopoeia and the National Formulary as *dark green;* i.e., *dark green* was understood to mean *weak olive brown* when applied to a crude drug. But the color term, *dark green,* applied to powdered chemicals had a widely different meaning; it referred to a color far beyond the color range of crude drugs. The importance of using consistent color terms in the U. S. Pharmacopoeia and the National Formulary to prevent confusion, however, has become increasingly evident during the last two decades, and has resulted in the introduction of the ISCC-NBS method of designating these colors.

Similarly the colors of bond papers form a somewhat restricted range, because bond paper is used primarily to render dark marks legible; bond paper, therefore, almost always has a light color. Groundwood papers are less restricted, because they have more diverse uses; only the very light colors are uncommon. As a result, *bond blue* refers to a much lighter color than *groundwood blue;* this will be further discussed presently. Whether it would be advantageous to use a single standardized system of color terms for both bond and groundwood papers will have to be decided, if at all, through cooperative study by those who are more familiar with the complexities of the paper industry than I am. This question will no doubt be considered carefully by the delegates from your association to the I. S. C. C.

Pressure on the Producer to Deviate from the Standard on the "High" Side

Maintenance of color standards by manufacturers of dyes, pigments, paints, textiles, papers, vitreous enamels, and so on, has probably been sufficient to protect the individual manufacturer and his customers against loss; i.e., no large changes over short periods of time are allowed by the average manufacturer to occur in the color of a material sold under a given name. However, there is pressure of various sorts exerted on the producer which cause his standards over a period of years to drift or creep toward the color corresponding to greater concentration of the colorant. For example, a small paint manufacturer may receive a repeat order for ivory paint. Having no instrumental means for control of his standards, he may dig out of the bottom of an almost empty can some of the pigment from the lot previously delivered. He recognizes the uncertainties of this method of duplicating a previously supplied color; so he will mix in slightly more yellow pigment than is required to produce a match. The customer will be very pleased to extend the paint by addition of inexpensive, inert material, if it turns out to be on the "high" side, but would certainly feel cheated if it were on the "low" side. This cyclic process results in a series of colors, all known as ivory, which become deeper as the years go by. Sometimes ivory means the color of well-scrubbed piano keys; at other times it refers to a color so dark as to make any self-respecting elephant blush.

The urge which causes this gradual drift in color standards is the very fundamental desire to please the customer and so to stay in business. Uncertainty as to the standard color usually results in a rapid drift; so, too, does the complaint of the sales department that a competitor is giving more for the money. These considerations apply to many industries; the paper industry is, as you well know, not exempt from them. The individual producer is powerless to take a stand against the destructive competition permitted by undefined color designations; collective action is required. The Blue Book Manual *(8),* was prepared partly to combat such destructive competition. Use of the ISCC-NBS method of designating colors would also combat it.

Sales Promotion

Another source of confusion in color designations is the color term invented, introduced, and promoted as an aid to the sale of the product. Such terms in one sense are more than color terms and in another are less. They often largely fail to be color designations, because they have no meaning except to that part of the general public reached by the sales campaign; but they may be much more than mere color designations, since they may suggest the glamour and romance to be associated with the color by the customer. The temporary gain in stimulation of sales through the successful promotion of a "new" color is a very important factor in marketing, being intimately connected with fashion and style. The Textile Color Card Association of the United States, one of the member bodies of the I. S. C. C., has been singularly successful for many years in finding terms which are at once descriptive of the color and helpful in sales promotion. The color designations of the ISCC-NBS system have practically no sales appeal; many of them are sales repellant when applied to certain products. An example is the term *weak red,* an accurate description of what is often meant by *brick red.* No brick salesman would be likely to describe his brick as *weak red,* because the adjective weak is uncomplimentary to brick. To permit the customer the opportunity of associating weak with brick is to risk driving him into the hands of a less inept salesman, if it does not make him decide subconsciously to build with stone. The ISCC-NBS color designations are, therefore, generally unsatisfactory for sales promotion; but they may be used to give information as to the color meant by names chosen for sales appeal, thus: *autumn,* a dusky brown; or *orient,* a moderate pink.

Blue Book Manual

In 1936 the Grading Committee of the Groundwood Paper Manufacturers Association issued a Standard Color Nomenclature System and Manual *(8),* known briefly as the "Blue Book." The book contains samples of about 200 colors which are iden-

tified by names chosen from traditional paper trade nomenclature, from dyestuff names, and from such other sources as the textile color cards *(9)* and the dictionary of color *(1)*. The purpose of the manual is primarily to provide an adequate means of color description for trade practices. It is necessary that trade practices restrict the depth of dyeing to an amount consistent with the increased cost over white papers. It shows clearly the relation between color and cost of groundwood paper. There is a whole page of "pastel depths—whites" defining the greatest depth of dyeing which may by trade practice be designated *white* or *natural*. Then for each hue is given the series: tint, light, medium, deep, dark-deep, and special deep. In the trade customs for groundwood paper *(10)* an extra minimum charge is recommended for all tint colors, double this added amount for all light colors, and three times for medium. For deep and dark-deep colors the minimum extra charge is 8 times that for tints, and for special deep colors it varies from 8 to 20 times that for tints. This arrangement is well adapted to the primary purpose of the manual; it has also been used to some extent by customs officials to aid in distinguishing dyed newsprint from other dutiable grades, and in mills for matching and estimation of costs. The ISCC-NBS color designations cannot, of course, show the relation between the cost and color of groundwood paper so well as the book which was constructed primarily for that very purpose. However, the various uses to which the book has been put suggest the need for standardized color designations in the paper industry as a whole.

A secondary purpose of the book is to "assist in furnishing a standard paper color language which does not exist at present" (in 1936). There is no doubt that the book has been a considerable help in this direction in spite of the unrelated names that were chosen. Table II gives the ISCC-NBS color designations corresponding to about 20 per cent of these names; these designations were obtained from comparisons of the colors in one particular copy of the Blue Book only. The corresponding Munsell notations (hue value/chroma) are also given. This comparison will illustrate the descriptive quality of the ISCC-NBS color designations, and will show how well it serves to supply different designations for colors that require differentiation in the trade customs of the groundwood paper industry.

TABLE II.—ISCC-NBS COLOR DESIGNATIONS

For a number of the colors of the Groundwood Paper Manufacturers Association Standard Color Nomenclature System and Manual.

Nomenclature System and Manual.

Blue Book Designation	Munsell Notation	ISCC-NBS Color Designation
Mauvette	5RP 6.7/ 2.8	Weak purplish pink
Phlox	1RP 5.8/ 3.5	Pale reddish purple
Morning glory	9P 5.0/ 4.0	Weak reddish purple
Manganese	7P 3.8/ 4.5	Weak purple
Coral	5R 7.2/ 6.5	Moderate pink
Carmine	4R 6.4/ 8.0	Light red
Crocein	4R 5.8/10	Light red
Geranium	4R 5.2/12	Strong red
Scarlet	4R 5.0/14	Vivid red
Flesh	10R 7.2/ 8.0	Light reddish orange
Apricot	10R 7.0/ 9.0	Light reddish orange
Tiger lilly	10R 6.0/12	Strong reddish orange
Tangerine	8R 6.0/14	Strong reddish orange
Ivory	10YR 7.6/ 4.0	Weak yellowish orange
Buff	10YR 6.6/ 4.3	Weak yellowish orange
Tan	8YR 6.0/ 4.5	Light brown
Russet	8YR 4.7/ 5.5	Moderate yellowish brown
Hazel	10YR 4.6/ 4.0	Moderate yellowish brown
India	2Y 7.7/ 4.8	Weak yellowish orange
Corn	9YR 7.4/ 6.5	Weak yellowish orange
Goldenrod	6YR 7.4/ 9.5	Moderate orange
Pumpkin	5YR 7.2/12	Strong orange
Celery	6Y 8.0/ 2.5	Weak yellow
Hay	6Y 7.0/ 3.5	Weak yellow
Palm	6Y 6.0/ 3.5	Dusky yellow
Moss	6Y 4.6/ 3.5	Light olive
Opaline	4BG 7.6/ 4.5	Very light blue green
Neptune	6BG 6.6/ 5.5	Light blue green
Malachite	6BG 5.8/ 7.5	Brilliant blue green
Victoria	6BG 5.2/ 7.5	Strong blue green
Peacock	9BG 4.0/ 3.8	Moderate greenish blue
Azure	10B 6.7/ 3.5	Pale blue
Sky	5PB 5.1/ 6.0	Light purplish blue
Cornflower	6PB 4.1/ 7.5	Moderate purplish blue
Ultramarine	6PB 3.0/10	Strong purplish blue
Cobalt	7PB 2.8/ 8.0	Moderate purplish blue
Purple	10P 4.0/10	Strong reddish purple
Pink	9RP 6.8/ 8.5	Moderate pink
Cherry	8RP 6.4/12	Brilliant purplish red
Red	3R 4.0/12	Strong purplish red
Crimson	4R 2.6/ 7.5	Dark red
Brick	5R 4.2/ 6.0	Moderate red
Orange	1YR 6.0/14	Strong reddish orange
Goldenrod	6YR 7.2/ 9.5	Moderate orange
Yellow	1Y 7.8/12	Strong yellowish orange
Primrose	5Y 8.0/ 7.5	Moderate yellow
Canary	8Y 8.4/ 4.8	Weak greenish yellow
Cafe	5YR 7.2/ 5.2	Weak orange
Buff	10YR 6.8/ 4.5	Weak yellowish orange
Russet	8YR 4.7/ 5.5	Moderate yellowish brown
Cream	5Y 8.4/ 5.5	Moderate yellow
Olive	5Y 5.2/ 1.5	Light olive gray
Green	4G 5.4/ 8.5	Strong green
Opaline	4BG 7.6/ 4.5	Very light blue green
Blue	5PB 3.2/10	Strong purplish blue
Violet	3P 3.0/ 8.5	Dark purple
Orchid	3P 6.0/ 4.0	Pale purple
White	4Y 8.3/ 1.5	Yellowish gray
Black	N 2.6	Dark gray

Traditional Paper-Color Names

As a further demonstration of their descriptive quality, Table III lists ISCC-NBS color designations for bond papers supplied by 4 manufacturers. At the top of each column is given the name used by the manufacturer to designate the color of the paper; this name is taken as the traditional paper-color name; and the color of the average sample is taken as an indication of the color of bond paper meant by the 15 color names found in this way. The ISCC-NBS color designation of the average color has been included in the table for all names used by more than one manufacturer of the four.

The color meant by the same name applied to groundwood papers has been taken as that given in the manual *(8)* referred to by the data of Table II. The ISCC-NBS color designations for these colors are also given in Table III for comparison with those referring to bond papers.

Table III indicates first that there is considerable uniformity as to the meaning of the traditional paper-color names applied to bond papers. The color of the bond papers supplied under the names, *salmon, russet, buff, goldenrod, primrose,* and *white,* vary so slightly as to stay within a single block of the ISCC-NBS system, and would, therefore, all be known by a single color designation in that system. The variations in the bond papers issued under the names, *pink, cafe,* and *blue* are equally minor but happen to cross ISCC-NBS boundaries so that two designations result instead of one. Variations among the *canary* and *green* bond papers are somewhat larger, as indicated by the diversity of the corresponding ISCC-NBS designations.

A second indication of Table III is that some traditional paper-color names have the same meanings both for groundwood and bond papers, but others diverge widely in the consistent sense that a given name applied to groundwood paper means a much deeper color than when applied to bond paper. This tendency is in accord with the fact that bond

TABLE III—TRADITIONAL PAPER-COLOR NAMES

Source of sample	Pink	Cherry	Salmon	Cafe	Russet	Buff	Goldenrod
Company A	Moderate pink	Brilliant purplish red	Light reddish orange	Pale orange	Weak yellowish orange	Moderate yellow	Moderate yellowish orange
Company B	Moderate pink		Light reddish orange		Weak yellowish orange	Moderate yellow	Moderate yellowish orange
Company C	Moderate pink		Light reddish orange	Weak yellowish orange	Weak yellowish orange	Moderate yellow	Moderate yellowish orange
Company D	Light pink					Moderate yellow	Moderate yellowish orange
Average ABCD, bond	Moderate pink		Light reddish orange	Weak yellowish orange	Weak yellowish orange	Moderate yellow	Moderate yellowish orange
Blue Book, groundwood	Moderate pink	Brilliant purplish red	Light reddish orange	Weak orange	Moderate yellowish brown	Weak yellowish orange	Moderate orange

Yellow	Primrose	Canary	Green	Opaline	Blue	White	Gray
	Pale yellow	Pale yellow	Very pale green	Very light greenish blue	Pale blue	White	Yellowish gray
	Pale greenish yellow	Light greenish yellow			Pale blue	White	
		Light greenish yellow	Light bluish green		Pale blue	White	
Light greenish yellow		Moderate greenish yellow	Very pale blue green		Light blue	White	Weak yellow
	Pale greenish yellow	Light greenish yellow	Very pale blue green		Pale blue	White	Yellowish gray
Strong yellowish orange	Moderate yellow	Weak greenish yellow	Strong green	Very light blue green	Strong purplish blue	Yellowish gray	

papers generally have light colors. Thus, the meaning of *pink* is moderate pink both for groundwood and bond, similarly *salmon* means light reddish orange, and *cherry,* brilliant purplish red. But *bond green,* a very pale blue green, contrasts strongly with *groundwood green,* a strong green; and *blue* applied to bond papers means pale blue, while *blue* applied to groundwood papers means strong purplish blue. The question whether it would be advantageous to use a single standardized system of color terms for both bond and groundwood papers will require further study. The results given in the table are offered as the beginning of a survey which might introduce such a study.

Conclusion

The ISCC-NBS method of designating colors has been approved for the colors of drugs and chemicals by the voting delegates to the I. S. C. C. from the following national associations of which, as mentioned before, your association (TAPPI) is one:

American Association of Textile Chemists and Colorists
American Ceramic Society
American Psychological Association
American Society for Testing Materials
Illuminating Engineering Society
National Formulary, American Pharmaceutical Association
Optical Society of America
Technical Association of the Pulp and Paper Industry
United States Pharmacopoeial Convention[2]

Your delegates cooperated with those from the other member bodies of the council and with individual members in shaping the ISCC-NBS method of designating colors. The details of this method were worked out at the National Bureau of Standards; the method is to be introduced into the National Formulary and the U. S. Pharmacopoeia, reference books required on the shelves of every pharmacist in the country. It is also to be used by the U. S. Department of Agriculture for the description of the colors of soils. There is no doubt that the color designations will gradually come into wide-spread general use. There is scarcely less doubt that they will find their way into the description of paper color in various indirect and, perhaps, unforeseen ways. This discussion serves to raise the question whether it would be advantageous to the paper industry to study particular uses for which the ISCC-NBS method of designating colors is adapted. One first step in such a study might be a survey of the colors indicated by traditional paper-color names such as that started in Table III. Another step might be to complete the translation (started in Table II) of the colors of the Blue Book into terms of the ISCC-NBS system of color designation. The discovery of particular uses in the paper industry to which this system of color designations is adapted must necessarily be by those acquainted with the industry, preferably by a group of experts representing the various phases of the industry. The members of your delegation to the I. S. C. C. will probably take the lead in such a study because they will doubtless be asked to advise the council what recommendation should be made concerning applicability of the ISCC-NBS color designations to paper. Your delegates will need help in their investigation; and from the assistance supplied to me in my preparation of this paper, and from the interest shown this morning, I am convinced that you will support and cooperate with them in any work on color designations which they undertake.

[2] Textile Color Card Association of the United States, not voting. The Society of Motion Picture Engineers at the time of the vote (May, 1939) was not yet a member-body of the council. There were no negative votes.

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The Colloidal Nature of Clay With Reference to Papermaking

By B. W. Rowland[1]

Abstract

This discussion is of a theoretical and technical nature concerning the colloidal attributes of clays which are of technical concern to the papermaker and is intended as a preface to a number of research projects in progress at The Institute of Paper Chemistry and which will appear in consecutive order as student thesis publications. No new data are presented in this paper, but an attempt is made to call attention to those colloidal characteristics of clay which are of particular concern. Recent experience in the paper industry with papermaking clays has forcibly called attention to the fact that paper is made with clays which differ widely in their colloidal characteristics, these differences being of minor concern in the past but of increasingly important concern in the future. This is due to technological advance in papermaking which calls for more exacting knowledge concerning the characteristics of all raw materials. In certain instances it has been found critical for the paper manufacturer to examine the characteristics of clays and not only to select the ones most adapted for his purpose but to make extraordinary efforts to get the colloidal properties of these clays under sufficient control so as to insure uniformity. The present discussion attempts to lay down a theoretical background and to point out in some detail the nature of these colloidal properties which have received attention.

While much attention has appropriately been given to the importance of the particle size distribution of clays for papermaking purposes *(1, 2, 3)*, there are many other essentially colloidal aspects which must be taken into account with reference to certain papermaking operations, notably the new so-called "machine" coating techniques. Some of these characteristics of clay have been pointed out by Hauser *(4)*. As an approach to certain technical problems encountered in the paper industry, it has been found necessary to consider clay as possessing important colloidal properties and to interpret certain of these properties in terms of the problems of the papermaker. A rich literature on the subject of clays, portions of which will be referred to later, has been accumulated mostly by the ceramists and soil chemists. An effort is made at this time to call attention to certain aspects of the colloidal behavior of clays, viewing the field broadly from the point of view of the papermaker, omitting detail wherever possible for the purpose of a general survey. Original research of a detailed nature on the subject is now in progress in this laboratory and will appear currently and in the near future.

The term "clay" has a fairly well-defined meaning in the minds of the papermakers, but actually the term does not define very much; not even the chemical composition of a clay is sufficient to define its characteristics. Clay minerals of varying chemical and physical constitution, it may be emphasized, belong to the class of hydrophilic colloids, the behavior of which is defined not only by the chemical and physical constitution, but also by an immense array of colloidal phenomena. This is not to say that the chemical content of a clay is of relative unimportance in its behavior. Obviously the elements which constitute a material will in the end define the ultimate behavior of the material as a colloid, taken into consideration with the other material with which it constitutes a colloidal system. It is necessary, therefore, to refer to the chemical constitution of the clay. Space does not permit at this time a full discussion of the chemical constitution of the clay minerals. The subject is too great in its scope, and it is not necessary at this point to consider the constitution of clays in detail. Many rocks in weathering away give rise to the compositions of alumina and silica and, depending upon the nature of the parent rock and the conditions of decay, aluminum silicates of various ratios of alumina to silica are produced. The reaction of water and carbon dioxide on orthoclase during the processes of rock decay give rise to ***kaolinite***, having a composition of one alumina to two of silica with two water molecules of hydration. When the composition contains four molecules of structural water, *halloysite* results. When, further, the composition is that of one alumina and three silica, we have *beidellite*, and when one alumina to four silica occurs, we have *pyrophyllite*. Within this range of silica-alumina ratios, we find our papermaking clays. Differences in the content of structural water likewise give rise to distinctive colloidal characteristics, particularly in regard to base exchange phenomena and reversible hydration. We commonly think of a given sample of clay as being constituted essentially of one or the other of these various clay mineral constitutents. As a matter of fact, much work needs to be done before we can assume such to be the case. The work of Grim and Bray *(5)* involving particle size measurements, ultracentrifuging, fractionation, double refraction and x-ray measurements, as well as chemical analysis, shows that many clays are constituted not of one but of several of the clay mineral species. Moreover, there appears to be a distribution of clay mineral species over the particle size range in a given sample of such clays as were studied by Grim and Bray. For example, it was found that kaolinite most commonly occurs in particle sizes of about one micron in diameter and that these particles are not reduced in size by methods of dispersion to less than 0.1 micron. Beidellite, on the other hand, occurs in particles of the finest colloidal sizes, under 0.1 micron, occurring widely as the finest colloidal fraction of clays which are in turn sometimes predominantly composed of other clay minerals. Montmorillonite, like beidellite, seems to occur in very fine particle sizes. Since the colloidal properties of these various clay mineral species are markedly different, it results that the fractionation of a clay containing a distribution of particle

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sizes, as well as a distribution of clay mineral species, will yield fractions which have widely different colloidal characteristics. Much work remains to be done to determine to what extent these facts have a bearing on the technical problems of the papermaker, but it would appear as important to extend investigations in this direction.

Structure and Properties of Clay Particles

X-ray studies on clay structures have recently brought to light numerous important features of the structure of the clay particle and have helped greatly to elucidate the mechanism of base exchange and hydration. The field has been appropriately summarized by Searle *(6)* and has been referred to by Hauser *(7)* and discussed in detail by Marshall *(8)*. This work shows, for example, that in the case of halloysite or kaolinite we have a 1:1 type of crystal structure, i.e., one sheet of alumina is condensed with one sheet of silica. In this instance the clays show little evidence of high chemical reactivity such as base exchange and are to be distinguished sharply from those of the 2:1 type in which the alumina is symmetrically condensed with two silica sheets. As an example of this we have pyrophyllite which exhibits the remarkable property of the expanding crystal lattice, also characteristic of beidellite and montmorillonite. These clays, characterized by the expanding crystal lattice, are very active in the matter of base exchange and hydration, the water molecules and the exchangeable basic ions taking their positions between the crystal planes which are capable of approaching or separating according to the influences that work upon them. It is a remarkable observation that among the more hydrated clays, the crystal sheets are much less firmly held together, as is the case in the dehydrated clays. This gives rise to the situation that, among the hydrous clays, a comparatively slight force may cause the crystal planes to glide over one another and actually result in a subdivision of the clay particle with relatively small forces being required to produce the disintegration. It is interesting to speculate that this might occur in the finishing of clay-coated or clay-filled paper, resulting in a compacting formation and the appearance of transparency with high gloss and low oil absorbency. The fact is, as referred to elsewhere in reports to follow from this laboratory, that those clays which belong to the more hydrous types of clays suffer the most in brightness and opacity when calendered in paper, and that they produce the best gloss. The other extreme is also in evidence in that calcined clay, which has no such hydrating properties and presumably no such crystal cleavage planes, is not damaged when calendered and does not produce any appreciable amount of gloss.

Colloidal Properties

Among the many colloidal properties of clay, that of hydration will be emphasized at this time as being of peculiar interest to the papermaker. The fact that the clay minerals exhibit the property of hydration leads immediately to the assumption that the crystalline characteristics of the clays are abnormal, at least to the extent that they are capable of entering into colloidal equilibria with water and electrolytes. It may mean, also, that we must follow Searle's *(9)* model and assume that the clay exists in a particular form, the actual structure of which cannot be definitely proved. For example, Searle proposes that the clay particles are built up as balls which as a whole would appear as crystallites but which are constituted of a number of lathlike crystals arranged in a felted mass, thus leaving a great deal of porosity into which water and ions can penetrate. The entire ball has a globular shape and may become hydrated, not only on its surface but also on the interior capillaries between the felted crystals. This model affords the possibility of subdivision in that, if the particle becomes sufficiently hydrated, it may break apart, forming a few platelike masses which would account for some of the other known properties of clays. It might be supposed further that the lathlike crystals of the clay mineral might be covered with the so-called "clay" substance which may in turn be a colloidal mixture of alumina and silica, and that this clay substance may also reside between and among the tangled clay crystals within this ball particle. This model of Searle certainly provides a very workable concept of the structure of the clay particle although, as Searle states, the actual existence of such a structure has not been demonstrated.

Deductions from the recent studies of clays by means of x-rays have, however, provided further interpretation of the structure of clay and its hydrating properties. This interpretation is not wholly unlike that of Searle, but perhaps goes one step farther in explaining the relation between the hydrating properties of clay and its base-exchange characteristics. It is well known, for instance, that those clays which are chemically active or which enter freely into the phenomenon of base exchange are also those clays which exhibit the greatest hydrating characteristics. Grim *(10)* has recently summarized this correlation in a very satisfactory manner. He pointed out that in the structure of the kaolinite crystal, which is not of the expanding type, the oxygen and hydroxyl layers lie adjacent to each other in the kaolinite units. The layers, therefore, are held together by forces of a greater magnitude than is the case in montmorillonite, wherein the oxygen layers lie adjacent in the structure. According to Grim water molecules may adhere to the surface of the clay crystal particles through the attractive forces which reside there, and these attractive forces relate to the presence of adsorbed cations, which in turn have a certain hydration affinity. This surface water may be responsible for the separation of individual flakes of clay mineral, the surfaces of which are now covered with an oriented film of water dipoles. The film of water may act as a lubricating film and may participate in the slippage of crystal planes or crystal surfaces over one another. As a consequence, the clay minerals which are marked by a strong tendency to hydrate and a strong tendency for base exchange can be subdivided by comparatively weak mechanical forces, whereas those minerals which, like kaolinite, do not possess these characteristics, are ground to a finer state with great difficulty. These facts probably explain the occurrence of the more hydrous clays in the finer particle fractions of our native clays. Those clays which exhibit strongly the properties of base exchange will also exhibit strong variations in hydration according to the exchangeable bases present. For example, the sodium ion possesses a greater hydration capacity than does the calcium ion which may enter into base exchange with sodium. The result is that the sodium clays are more hydrous in their nature than are the calcium clays. The clays may be converted into so-called "hydrogen" clays by

the substitution of hydrogen for the alkaline earth and alkali cations and, since the hydrogen ion is of a lesser degree of hydration, the hydrogen clays are still less hydrous. Thus, as Grim points out, a clay constituted of flakes which have strong surface forces upon their surfaces and a thin film of water due to the presence of an absorbed cation of low hydration capacity would cling together and would form a sticky plastic mass. On the other hand, a clay with a high attractive force and a thick water film, because of the presence of a more highly hydrated cation resident on the surface, would yield a less sticky mass, but would still possess the properties of plasticity. Thus, it can be concluded that the hydration characteristics of a clay are intimately associated with the crystalline structure and the base-exchange phenomena into which it is capable of entering. It furthermore is obvious that the hydration properties will change markedly as the base-exchange reactions are allowed to proceed in different directions.

Dispersion of Clays

The phenomena of dispersion of clays by means of electrolytes containing exchangeable bases and its counterpart, the coagulation of clay, may likewise be understood from these investigations. Meyer *(11)* has appropriately dealt with the mechanism of coagulation of clays by a consideration of the surface condition of the particle and the adsorbed ions which are present, capable of entering into various reactions, resulting in changes in electrostatic behavior and stability.

The water content of a clay may be roughly divided into three types: First, combined water, which is the water of crystallization and which occurs in a fixed proportion for a definite species; second, the colloidal water, which occurs in indefinite proportions and may vary widely according to the conditions which have just been described; third, the free water, which includes the moisture and pore water, and which is not combined in any way and can be readily removed by washing with alcohol. It is the second form of water, the colloidal water, with which we are particularly concerned in the present discussion, for it is the colloidal water which plays a major role in the plastic properties of the clay. The properties of base exchange must be fully appreciated, also, these being more directly related to the colloidal water relationship. It is interesting at this point to draw an analogy between the clay particle and the cellulose fiber insofar as its hydrating properties are concerned. It will be recalled that, in the case of the cellulose fiber, there is a certain normal amount of colloidal water present. When this colloidal water is removed, the fiber undergoes an irreversible change which results in alterations of its hydrating properties thereafter. Cellulose fiber is also capable of entering different states of hydration in the presence of electrolytes, and while the phenomena of base exchange may not be as pronounced as in the case of clays, nevertheless the hydrating characteristics of the ions which enter into the cellulose fiber structure are undoubtedly involved in the hydration effects *(12)*. Similarly with the clays, the hydration of a clay requires considerable time and the rate is greatly promoted by conditions of mechanical agitation. Thus Ostwald *(13)*, in endeavoring to find ways of identifying the colloidal nature of clay specimens, observed that the rate of hydration of a clay subjected to mild agitation as measured by viscosity instruments, occurs over a comparatively long interval of time. The more hydrous the nature of the clay, the longer is the time required to hydrate the clay fully. It will hydrate to its maximum on standing without mechanical agitation, but with mechanical agitation the hydration rate is much faster. In the case of the clays which are highly hydrous in nature, the maxima of hydration are approached slowly and over a long period of time; whereas with the clays which exhibit a much less degree of hydration, the complete hydration is accomplished in a very much shorter length of time, the maximum being much lower. Those who have worked with clays in coating slips will readily appreciate the effect of mechanical action on the hydration of the clay. The hydration progresses as the mechanical action continues and the body or the plasticity of the mix steadily increases to an extent depending on the nature of the clay. Ostwald also calls attention to the importance of the sedimentation volume as a means of characterizing the hydrous nature of a given sample of clay. The clay is suspended in water and flocculated with a mild amount of acid and allowed to sediment to a constant volume. The depth of the sedimented layer is largely controlled by the conditions which parallel the degree of hydration of the clay. As in the case of the cellulose fiber, the colloidal properties of a clay are influenced by the history of the sample and the chemical and colloidal experiences which it has undergone.

Dilatancy and Thixotropy

Another important property of colloidal dispersions which must be considered in connection with the technology of clay and clay mixtures is that of dilatancy and its opposite, thixotropy. Dilatancy is the property readily observed in mixtures of uncooked starch grains and water; it is also in evidence in calcined clay-water mixtures. At a suitable concentration of the starch or calcined clay, a dispersion will flow freely if allowed to flow without very much force being exerted upon it. On the other hand, if a force of a sudden and considerable magnitude is exerted upon the dispersion, it becomes very resistant to flow. This phenomenon was first observed by Osborn Reynolds *(14)*, who also coined the term dilatancy. Reynolds accounted for the phenomenon by assuming that dilatant systems in a state of rest were constituted of closely packed particles and that, upon disturbing the system, the orderly and close packing of the particles is disturbed, opening larger interstitial voids between the particles. Studies of the flow properties of dilatant systems show that they have no yield values, that the speed-weight curve as measured on viscometers is concave to the weight axis, and that there is no time factor involved in the measurement of dilatancy. The particles of dilatant systems are relatively unstable and of comparatively coarse size, ranging from one micron upwards. A dilatant system furthermore gives very small volumes on sedimentation, showing that the degree of hydration is also a factor in those systems exhibiting structural viscosity. Thixotropy, on the other hand, is defined as a reversible sol-gel transition and is present in dispersions of intermediate stability showing a building up of apparent viscosity with time. Thixotropic systems show a large volume of sedimentation and are strongly plastic in their properties *(15)*. They consist for

the most part of partially destabilized particles of small dimensions from 0.1 micron downwards. It is noteworthy that dehydrated calcined clay exhibits strong dilatancy, whereas the strongly hydrous clay bentonite exhibits marked thixotropy, a strong indication thus being afforded with reference to the importance of hydration in these phenomena.

Still a third type of structural viscosity might be mentioned in connection with the subject of clays, that of false body viscosity *(16)*. The false body type of viscosity, which has been of considerable interest to the manufacturers of paints, is characterized by a very rapid build up of viscosity with time, and is said to be due to the random aggregation of coarse particles of ten microns or greater, these particles being essentially unstable in the suspension. This property of false body is not met with as such in papermaking clays, but it must be pointed out that anything which is done to a suspension exhibiting false body properties, such as to increase the viscosity, introduces a thixotropic influence into such a system and we then have a condition encountered in coating color compositions. Space does not permit further detail regarding the complex nature and behavior of the clays. Reference must be made to the rich literature in the field if further details are necessary.

Behavior of Clays in Coating

In view of these generalizations, however, we may now attempt to examine some of the technological consequences of the colloidal nature of clay dispersions, using experiences relating to the study of problems in the paper mills. Our knowledge of the behavior of clays with reference to the coating operation is perhaps more extensive than that referring to clay as a filler, although elsewhere in this program laboratory data are presented with reference to the filler problems. Papermakers in the past have expressed a preference for this or that clay to be used as a coating pigment, because experience had shown it to be more suitable in its working qualities on the coating machine, and that it gave the quality of coated surface required. There is, of course, no better guide to the proper choice of clay than such experience. It remains, therefore, in such a case only to produce a sufficiently uniform supply of the clay to operate with a minimum of clay troubles. In attempting to discuss the suitability of clays for various purposes in coating paper, attention must be paid to the flow properties, the surface character of the sheet, the calendering characteristics and, finally, the printability of the sheet. As has been said earlier, the characteristics of a given clay can be modified somewhat by the proper choice of dispersing agents which furnish a medium of base exchange and which will, therefore, alter the hydration properties of the clays. Certain latitude is possible in the proportions of water and adhesive materials used in compounding the coating color. Some latitude is available also in the proper choice of raw stock and in the coating machine operation. Having found a clay that is approximately correct for a given operation, it has been possible for the paper technologists to devise coating-color compositions which would yield satisfactory results, particularly with reference to the standard coating machine operation. However, in the recently developed methods of rapid machine coating, all of the colloidal properties of the materials employed become of critical importance, and it has been necessary in a number of cases to examine with the greatest care the colloidal nature of the clay and that of the coating color. Experience has taught that viscosity measurements of the finished coating color or of the clay slips before the addition of the adhesive material are not sufficient criteria to determine whether the coating color will work properly on the machine. While viscosity measurements are a measure of certain fundamental characteristics of the colloidal nature of the color, they are not sufficiently inclusive to define other necessary features of the color if it is to be suitable for the operation. For example, if plasticity enters, we may have a degree of thixotropy present or perhaps a certain amount of false body structure. In such an instance, the viscosity measurements as made on the usual laboratory instruments will measure not the yield value but a certain flow property at an arbitrary and relatively low rate of shear. If measurements of this type were to be used, it would be necessary to extrapolate the weight-flow curves to reach a range of speeds such as prevail in the high speed coating operation. Extrapolation of such curves would be quite uncertain, although it would be perhaps a way of approximating the flow properties of the color at high rates of shear. If, on the other hand, a certain measure of dilatancy is present in the coating color, it has been shown that the weight-speed curves for dilatant systems are concave to the weight axis and, therefore, extrapolation would be impossible. To reach the flow properties at high rates of shear, say of 600 or more feet per minute which are used in the high speed coating operation, the viscosity behavior of the coating color at the time of application to the raw stock is of importance, because it determines among other things, as the paint makers have found, the leveling-out properties of the coating color on the surface of the sheet after its passage through the coating rolls. It also determines the manner in which the color will flow between the coating rolls and has a strong influence on the weight of the coating obtained. Attempts have been made to measure the thixotropy of coating-color compositions and of clay slips before the addition of the adhesive materials. This can be approximated by measuring the apparent viscosity of the material at two different rates of shear on one of the several types of rotary viscometers common in most laboratories. However, as pointed out by Röder *(17)*, systems which possess structural viscosity, particularly those showing false body viscosity or thixotropy, are destroyed by such methods of measurement. In other words, if we insert a rotating element into the body of a coating composition, we find that a certain number of revolutions are required, before the viscous properties of a material seem to become fixed. By this time the mechanical action has broken down a great deal of the structure of the material, and what is measured in this case is a partially broken down system which would exhibit different apparent viscosities under other conditions of measurement. The work of Röder referred to offers a new type of instrument suitable for measuring thixotropy without previously disturbing the system, but this has not as yet been applied to our technical problems of coating.

Work now in progress at the Institute laboratories is along these lines, and a report will be available in the near future. An approximation to the flow properties of coating color at high speeds of shear may be made by measuring the apparent vis-

cosity at two different rates of shear on the rotary viscometers and dividing one value by the other. This does not measure the true thixotropy, but it may measure false body structure. Actually the figure obtained by dividing the apparent viscosity at two different rates of shear has furnished a factor which has been of service in estimating the suitability of a clay for a given high speed coating operation. It is important to note that a single measurement of viscosity has practically no significance in this connection. We are, therefore, dealing with structural flow properties, the nature of which remains to be further elucidated.

Hydrating Properties

Returning to the problem of the hydration of clays, this becomes of great importance in rapid coating operations. Particle size is likewise involved; but it has been observed that, among the clays of approximately the same particle size distribution, the hydrating properties of the clays are of critical importance; so important is this feature of the clay that variations in the hydration properties of clays from the same producer and supposedly from the same source will be so great that commercial paper cannot be made of some shipments, whereas perfectly satisfactory paper can be made from other shipments of the material. This statement is not to be construed in any way as to disparage the work of the clay producers. It means, rather, that more exacting requirements due to the recent developments in the paper field have necessitated a closer control and a closer study of raw materials. At least in two instances, where these problems were pointed out to the producers of clays, the latter have taken prompt and effective steps to insure the delivery of sufficiently uniform shipments of clay as to meet with the manufacturers' requirements. In attempting to visualize the part played by the hydrating properties of the clay in the composition of the coating color and of the application of the color to the sheet, it is helpful to start at the beginning in the compounding of the coating color. The clay is mixed with water and at the very outset it is important to observe that it makes a great difference whether the dispersing agent is added to the water before the clay, or whether the clay is added to the water and the dispersing agent added last. These two cases give us entirely different viscosity properties through the functioning of a mechanism which has not been adequately explained. It is to be noted also that the different dispersing agents containing different exchangeable cations and different anions will also exert their influence and will give different apparent viscosities for the same clay in the same concentration.

It is necessary further to work the clay until its hydrating properties have approached a steady condition or at least have approached a maximum. If this is not done, the property of the clay will continually change as it remains in contact with the water in the coating color. When the clay has been properly dispersed, it is then ready for the addition of the adhesive, and in most of the cases to which reference has been made, this adhesive is starch, usually a modified starch of a thin-boiling nature. When starch is added to the coating clay in suspensions, a number of very important colloidal effects follow immediately. Some of the more important of these effects have been recognized and studied and have been of great assistance in understanding the problems. Perhaps the most important colloidal phenomenon which occurs, when the adhesive is added to the clay suspension, is the redistribution of water between the clay and the colloidal matter of the adhesive, in this case, the starch. There is also a redistribution of ions between the two, and this again changes the hydrating properties of the clay and to a certain extent under certain conditions the degree of dispersion. In the present state of our knowledge concerning this system, it is not possible to predict in advance what kind of a viscosity in the finished coating color will result from the viscosity of the clay in water only. A striking illustration of this is the following observation: Two clays which we shall call "A" and "B", respectively, were obtained from the same source and were very much the same in most respects. They were prepared in water suspensions in exactly the same concentration with exactly the same type and amount of dispersing agents.

Clay A gave a very thick paste, whereas Clay B gave a very thin paste. This difference was not due to particle size, because the two clays had very nearly the same particle size distribution. It was not due either to the differences in the distribution of the clay-mineral species between the two, because they came from the same deposit, in which they were located very close together. It was probably due to variable amounts of exchangeable bases in the two samples, and while the clays of this type, principally kaolinite, are not particularly active in regard to base exchange phenomena, they nevertheless participate in this action and their properties, particularly hydrating properties, are affected thereby. Upon the addition of exactly the same amount of starch preparation to each of the two clays, Clay A which was originally very thick became very fluid and Clay B which was originally very thin became very thick. These preparations contained a quantity of water which was very close to the critical point; that is to say, a little water more or less greatly influenced the viscosity of the preparations, and this apparently paradoxical behavior was ascribed to the differences in the redistribution of the water between the two clays and the starch which had been added. As has been previously stated, a measurement of the viscosity of the finished coating color does not tell whether the color will work satisfactorily in the coating operation. Obviously some new technique or testing procedure will have to be devised to determine what property of the clay or the coating color could be measured so as to predict in advance the manner in which the clay would go on the raw stock, and whether the results would be satisfactory. We have noticed that, when the starch is added to the clay, there is a redistribution of water and electrolytes between the starch and the clay, and the ultimate flow properties of the mixture will depend not only upon the nature of the clay, the dispersing agent, the quality and amount of starch, but also upon the final condition of dispersity and hydration of both the clay and the starch when the system reaches equilibrium. If now this coating color is applied to the raw stock at a high rate of flow, there is almost a spontaneous redistribution of water again, this time between the coating color and the raw stock. Obviously this redistribution of water on the coating machine relates to the characteristics of the raw stock as well as to the coating color, so that the problem of control becomes one of adjusting all the conditions to a neces-

sary optimum. Consider, for example, a coating color containing a clay which is too hydrous; that is to say, it holds its water too tenaciously. This means that when this color comes in contact with the raw stock, there will not be a sufficient redistribution of water to the raw stock to provide the proper anchorage of the color to the surface of the sheet. The coating color may level out properly because as it emerges from the pressure of the coating rolls, it still contains sufficient water to flow and even the surface. As a consequence the coating may appear satisfactorily smooth, but it is not properly anchored to the sheet, and due to the presence of excess adhesive in the coating film itself, the oil penetration of the sheet may be too low for satisfactory printing. Another consequence of the presence of too much water and too high fluidity in the color film as it emerges from the pressure of the rolls is that the transfer of water to the raw stock is accomplished by a certain amount of swelling of the cellulose structure, causing expansion, and the too fluid color film will be drawn inward at various points, resulting in surface irregularities which cannot be removed by calendering. It also has a tendency to flake off from the surface of the sheet on calendering and for this reason the paper is unsatisfactory. Consider on the other hand the case of the coating color which does not hold its water with sufficient tenacity. As this color goes to the coating raw stock, there is too great a transfer of water from the color to the raw stock and the upper layers of the coating itself are robbed of the adhesive and the coating film is not sufficiently moist to flow properly after it leaves the pressure of the coating rolls. The result is that the sheet is rough and this roughness cannot be calendered to a suitable smoothness. It also tends to dust off on the calenders and while the ink absorbency may be satisfactory, the other features of the surface are not. Both of these extremes have been experienced deliberately in experimental work with the results as described. In considering the tenacity with which the coating color holds its water, it has been found that the clay is the predominating factor in determining the manner in which the coating color holds water, and so sensitive is the operation that variations in successive shipments of the same clay from the same producer were found in early work to have been sufficient to render commercial manufacture impossible in the coating operations. As stated before, steps were taken with the full cooperation of the producers of the clay to maintain a higher degree of uniformity of the clays with reference to its hydration and base exchange capacities, and when this step was taken, it was found possible to control the operation satisfactorily. It has also been found necessary to devise certain tests which would give some information concerning the manner in which the coating color can release its water. For this purpose a number of simple tests were devised, among them being the following:

The coating color was placed in a small, shallow vessel and a piece of blotting paper of standard quality, which had been previously dusted with the standard TAPPI sizing indicator, was dropped onto the surface of the color, and with a stopwatch the time noted for the blotting paper to became saturated with water. The blotting paper under these conditions must abstract the water from the coating color or from the clay as the case may be, and the time interval required for this was found to be a measure of the degree of ease or difficulty with which the clay or the color would part with a portion of its water content. To illustrate further the insufficiency of viscosity measurements for determining the suitability of a coating color for these high speed operations, it need only be pointed out that cases were found of different coating colors which were made up in the same proportions of clay and adhesive and which happened to give the same final viscosity as measured at a single rate of shear on a rotating viscometer. One of these compositions might be perfectly satisfactory in the coating operation, whereas the other was unsuitable. Testing the two colors with the blotting paper test showed them to be widely different in their water-holding capacity. Thus we have an illustration of the independence of the viscosity test as ordinarily measured and the freeness of the water in the color.

Work now in progress in our laboratory is directed toward the determination of the inter-relation between the hydrous characteristics of the clay and the structural features of the clay as measured on an instrument similar to that developed by Röder. Undoubtedly the flow properties of the clay as defined by the characteristics of thixotropy or dilatancy will also be found to be of even greater importance than has been supposed.

As previously stated, the hydrating properties of a clay can, in the present state of our knowledge, be modified to a certain extent but only to a certain extent. The result is that at the present time, it appears necessary for the manufacturer to choose that clay which seems to be of the approximate characteristics desired and to modify it within the limits possible for control. It means that the user of clays for such purposes under a given set of operating conditions does not have a free choice as to his selection. Perhaps in the future the clay technologist and the papermaker will devise means of so compounding coating colors as to widen the range of choice of clays which can be used. This does not seem improbable, although at the present time it appears that much work will have to be done before this goal is reached.

In conclusion, it may be said that this excursion into the characteristics of clay has not been a matter of choice, but has been impelled by the needs of the industry. It represents a specific instance of the trend toward a closer examination of the characteristics of raw materials, and the necessity of close cooperation between the user and the producer of these materials.

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Imports of Paper and Paper Making Stock

Giving Manifests of New York, Boston, Philadelphia and Other Ports of Newsprint, Wrapping, Writing, Coated, Blotting, Tissue, Strawboard, Bleached Sulphite More Acute—Some Grades of Old Waste Lower.

Effective September 30, 1939, under Treasury Decision 49,970, all publications, exchanges and trade associations, were denied access to import manifests at the New York Customs House. The Paper Trade Journal and other interested parties have vigorously protested this ruling, and as soon as the order of the Treasury Department is modified or rescinded, full publication of all manifests will be resumed in these columns. In the interim, the Paper Trade Journal is making every possible effort to gather all available information from manifests, at various outside sources.

NEW YORK IMPORTS

WEEK ENDING OCTOBER 12, 1940

SUMMARY

Newsprint .....2,756 rolls

NEWSPRINT

International Paper Co., ——, Gatineau, 337 rolls.
H. G. Craig Co., Inc., ——, Donnacona, 368 rolls.
——, ——, Sheet Harbor, N.S., 2,051 rolls.

RAGS, BAGGINGS, ETC.

J. Levy & Son, *Oriente*, Havana, 13 bls. rags.
——, ——, Bombay, 19 bls. old rags.
C. Comiter, Co., ——, Bombay, 450 bls. cotton waste.
W. Intner Co., ——, Bombay, 200 bls. cotton waste.

BALTIMORE IMPORTS

WEEK ENDING OCTOBER 12, 1940

American Cyanamid & Chemical Corp., ——, Buenos Aires, 834 bags casein, 50,040 kilos.

LOS ANGELES IMPORTS

WEEK ENDING OCTOBER 12, 1940

——, ——, London, 1 cs. drawing paper.

Buy Paper Under Walsh-Healey Act

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., October 16, 1940—During the week ended September 28, the Government purchased $26,541.20 worth of paper and allied products under the Walsh-Healey Act as follows: $12,602.20 worth of paper bags for Navy, Marine Corps from Mathers-Lamm Paper Company, Washington, D. C.; and $13,939.00 fiber containers for War, Ordnance from Improved Mailing Case Company, Inc., N. Y. C.

Knight, Allen & Clark Add Display Room

BOSTON, Mass., October 14, 1940—Knight, Allen & Clark, Inc., have added a display room to their office, which was arranged by Joseph Kinnery of that Company, in a very attractive manner. The room shows the various mill lines the firm carries on a black cloth background in seven panels.

The entire office of the company has recently been remodelled, so that all orders and telephone calls can be handled quickly and efficiently.

E. W. Menke Becomes Manager

Appointment of Edward W. Menke, well-known Chicago mechanical engineer, as general manager of the engineering and machine division of the St. Regis Paper Company, Oswego, N. Y., became effective the week of October 5, when Mr. Menke came to Oswego to assume the duties of his position, may mean extension and expansion of the Oswego plant, where most of the bulk commodity packing machines produced in this country are manufactured.

Mr. Menke said he was busily engaged in becoming acquainted with plant details and personnel, although he felt quite at home in the Oswego plant because for a number of years up to 1929, when the Bates Valve Bag Company was acquired by the St. Regis Paper Company, he was an executive in the Bates Company. He said he could not state definitely what developments were being planned, for the field which the St. Regis Company machine division covers is constantly broadening in scope, and he considers the Oswego plant ideally tooled and manned for the important functions it serves in the field, which extends to other countries, as well as through the United States.

Mr. Menke started his engineering career with the Bates Company and then went with a well-known chemical company in Chicago until 1924 when he returned to the Bates Company organization, remaining until 1929.

In that year he opened a consulting engineering office in Chicago, and in 1935 started and became president of the Kelly-Menke Company and the Kelmenite Corporation, in both of which concerns he continues his interest. He devised the process for aluminating glass for reflector uses, and invented the process likewise for making a new form of glass used. The product is used in billboards, advertising devices, etc., as well as in many other ways, and represents an innovation in the process and the materials used.

Mr. Menke said that Louis N. Brenner will remain as manager of the Oswego plant, and N. E. Dorrington as chief engineer, and that his coming to take charge of both engineering and production as general manager will not result in personnel changes.

Watertown's Assessment Roll Lower

[FROM OUR REGULAR CORRESPONDENT]

WATERTOWN, N. Y., October 14, 1940—A decrease in the 1940 assessment roll of the taxable property in this city was caused mainly by a reduction of about $250,000 in the assessment of the Bagley & Sewall Company, which was recently taken over by Abe Cooper, prominent business man. The company requested a reduction on its property some time ago. Other paper mills in this section have been granted reductions in recent years following complaints.

Wages For Paper Products

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., October 16, 1940—Minimum wage rates of 40 cents, 38 cents and 36 cents an hour for the manufacture of various articles from paper have been recommended by the Converted Paper Products Industry Committee, the chairman, Wayne Lyman Morse, dean of the University of Oregon Law School, Eugene, Oregon, reported informally Tuesday to Colonel Philip B. Fleming, Administrator, Wage and Hour Division, Department of Labor.

The hourly rates of approximately 25,000 men and women employed in 2,120 establishments located in every major industrial center of the country will be raised if these rates are approved by the Administrator after a public hearing at which interested parties may appear for or against the recommendations.

Rates below the recommended minimums were found to exist in nearly all the cities where the industry is located. The total number of persons employed in the industry is approximately 200,000.

The informal report, sent in advance of an official report, which is being drafted by a sub-committee, follows:

"Industry Committee No. 14 for the Converted Paper Products Industry under the Fair Labor Standards Act today voted to recommend minimum wages of 40, 38 and 36 cents an hour according to a products classification. The minima recommended for the various products are as follows:

"40 cents—Folding paper boxes; shipping containers, corrugated and solid fibre; paper cups; bottle caps and hoods; waxed paper; water-proof paper; glazed and fancy paper; commercial envelopes; tags and labels; gummed papers; carbon paper; towels and toilet tissues; auto panels; photo mounts; die cut specialties; sensitized papers; sand papers; loose leaf and blank books; tablets and pads; index cards and stationery; playing cards; paper matches; and all products in which synthetics are the principal basic components and all products made by coating or impregnation with any material of paper or paper boards.

"38 cents—Shipping sacks; paper bags; miscellaneous rolls; wrapping specialties; and products not elsewhere classified.

"36 cents—Set-up boxes; cans, tubes, cones, straws, spools, etc.; expanding envelopes and related products; plain rolls; lace and fluted paper products; twisted paper products.

"The committee stipulated that the rates are separable, so that any of them might be disapproved without affecting the others.

"The committee voted to recommend that the Administrator give further consideration to the question as to whether toys and playthings are to be included under the Converted Paper Products Industry."

Committee members for the public were: William E. Simkin, Philadelphia, Pa.; Dr. John A. Lapp, Chicago, Ill.; Thomas L. Norton, Buffalo, N. Y.; Edgar M. Hoover, Jr., Ann Arbor, Mich.; Col. William John Wilgus, Ascutney, Vt.; Tipton R. Snavely, Charlottesville, Va.; Joseph M. Klamon, St. Louis, Mo.; and William Haber, Ann Arbor, Mich.

Committee members for the employees were: Burt J. Mason, Chicago, Ill.; Frank Grasso, New York, N. Y.; Ray Thomason, Richmond, Va.; John Sherman, Tacoma, Washington; Earl C. Taylor, Toledo, Ohio; Homer L. Humble, Prichard, Ala.; Miss Harriet Wray, New York, N. Y.; C. V. Ernest, Baltimore, Md.; and Boris Shishkin, Washington, D. C.

Committee members for the employers were: H. M. Treen, Fort Wayne, Ind.; A. R. Leiserson, Richmond, Va.; Norman F. Greenway, New York, N. Y.; Allen K. Schleicher, St. Louis, Mo.; Vasco E. Nunez, Nashua, N. H.; James L. Coker, Hartsville, S. C.; Ralph A. Hayward, Kalamazoo, Mich.; E. V. Johnson, Springfield, Mass.; and Merritt J. Davis, Wellsburg, W. Va.

Newsprint Production Gains

Production of newsprint in Canada during September 1940 amounted to 282,322 tons and shipments to 284,133 tons according to the Newsprint Service Bureau. Production in the United States was 77,888 tons and shipments 77,470 tons, making a total United States and Canadian newsprint production of 360,210 tons and shipments of 361,603 tons. During September, 29,990 tons of newsprint were made in Newfoundland, so that the total North American production for the month amounted to 390,200 tons. Total production in September 1939 was 357,929 tons.

The Canadian mills produced 514,706 tons more in the first nine months of 1940 than in the first nine months of 1939, which was an increase of twenty-five per cent. The output in the United States was 54,941 tons or seven and eight tenths per cent more than in the first nine months of 1939, in Newfoundland production was 39,848 tons or eighteen per cent more, making a total increase of 609,495 tons, or twenty and four tenths per cent more than in the first nine months of 1939.

Stocks of newsprint paper at the end of September were 158,312 tons at Canadian mills and 19,240 tons at United States mills, making a combined total of 177,542 tons compared with 178,935 tons on August 31, 1940, and 217,580 tons at the end of September 1939.

Hammermill Co. Elects Officers

A revised list of officials of the Hammermill Paper Company, Erie, Pa., made necessary by changes following the death of Ernst R. Behrend, former president of the company, are as follows:

N. W. Wilson, president and general manager; O. F. Behrend, treasurer; D. S. Leslie, first vice-president and assistant general manager; W. F. Bromley, secretary; W. T. Brust, vice-president and assistant treasurer; H. F. Obermanns, vice-president in charge of manufacturing; H. R. Baldwin, vice-president in charge of sales; M. Harrison, vice-president in charge of industrial relations; F. P. Klund, assistant secretary and advisory engineer, and A. E. Frampton, assistant secretary, advertising manager, and assistant general sales manager.

Westminster Forms Credit Union

Employees of the Westminster Paper Company, New Westminster, B. C., have organized a credit union. T. A. Switzer, assistant inspector of credit unions for the British Columbia Government, was present and assisted in organization of the group. Lester L. Willon was elected as president. The new organization has a membership of 40 and a potential membership of 200.

New York Paper and Pulp Market Review

Pulp and Paper Markets Continue Rather Soft With No Change In Prices Reported This Week—Old Waste Paper Less Active—Roofing Rags A Little Higher — Other Primary Markets Unchanged.

Office of the PAPER TRADE JOURNAL,
Wednesday, October 16, 1940.

Wholesale sales of paper continues to lag behind expectations and the same situation is reported in other non-durable goods markets. The general trend of production and distribution is upward, however, and a slight improvement in the demand for paper is indicated in reports received from some manufacturers' representatives, jobbers, and general paper merchants this week. In the opinion expressed in some quarters of the trade, a substantial increase in demand prompted by holiday demand is now setting in, with the prospect of excellent sales volume in several popular lines late this month.

The index of general business activity declined to 107.3 per cent for the week ended October 5, from 108.6 per cent for the preceding month, compared with 102.3 per cent for the corresponding period last year.

The new industrial production index of the Federal Reserve Board reached a new high peak of 124 for the week ended October 5, compared with 113 for 1937 and with 110 for 1929.

Paper production of 230 mills for the week ended October 5, was estimated at 88.7 per cent, compared with 92.6 per cent for 1939, with 81.6 per cent for 1938, with 77.0 per cent for 1937, and with 87.1 per cent for the corresponding week for 1936.

Paper board production for the week ended October 5 was 78.0 per cent, compared with 84.0 per cent for 1939, with 70.0 per cent for 1937, and with 81.0 per cent for the corresponding week for 1936.

The paper market is reported as soft in most quarters of the wholesale trade at this date. Sales volume in some lines is about equal to a year ago, while the demand for other kinds of paper is below that of this date last year. Wholesale buying is reported to be at least three weeks late this year. Sales volume last year at this date was at a peak, a substantial part being represented by Christmas wrapping papers. With general retail sales now over 10 per cent higher than last year, and with industrial and trade activity steadily rising above the high level of 1939, the volume of Christmas business this year appears likely to establish a new high record volume for year-end sales.

Paper exports, which reached a new high in July, declined in August and still lower in September, with the trend apparently down at this date. Total exports of paper and paper products for August, 1940, totaled 52,692 tons, valued at $6,049,468, compared with 21,833 tons, valued at $2,274,619, for August, 1939.

Exports for the 8 months of 1940, totaled 418,276 tons, valued at $43,745,075, compared with 163,529 tons, valued at $17,704,012 for the 8 months of 1939. Kraft container board represented the item of greatest volume, exports of which in the 8 months of 1940 totaled 77,839 tons, while other paper board aggregated 39,354 tons, writing paper 37,138 tons; sulphite wrapping paper, 29,444 tons and kraft wrapping paper, 30,781 tons.

No important change from prevailing representative market quotations on any grade of paper has been reported to date.

Mechanical Pulp

No important change in the market situation of mechanical pulp has occurred this week. This market is rather soft. U. S. production of groundwood for August, 1940, totaled 86,965 tons, compared with 86,401 tons for July, and with 96,190 tons for June, 1940.

Chemical Pulp

The market situation in chemical pulp is soft. U. S. production of bleached sulphite for August, 1940, totaled 139,171 tons, compared with 130,909 tons for July and with 137,784 tons for June, 1940. Production of unbleached sulphite for August, 1940, totaled 84,104 tons, compared with 77,790 tons for July, and with 76,701 tons for June, 1940. No important price changes have been reported this week.

Rags

No important change in the domestic rag market has been reported this week in demand. Mill buying continues within a limited range of grades. Lower prices are quoted on repacked thirds and blues, at from 1.50 to 1.65, and on the miscellaneous grade, currently quoted at from 1.10 to 1.25. Higher prices are reported on No. 1 roofing rags, currently quoted at from 1.00 to 1.10, and on the No. 2 grade, currently quoted at from .90 to .95.

Old Rope and Bagging

Prices are steady and firm on old Manila rope under a steady mill demand. No important change from prevailing market quotations has occurred to date.

No important change has been reported in old bagging. Prices remain unchanged.

Old Waste Paper

Trading in paper stock is less active this week and this market is rather soft. No important change in prices has been reported during the current week.

Twine

No important change in demand or prices has been reported in the twine market during the current week, on any grade of hard or soft fiber twine.

New Embossing Designs

The McLaurin-Jones Company of Brookfield, Mass., has just added to its line of beautiful embossing patterns two new designs, which they designate as Filet and Dartnet. They are both attractive numbers, and reveal a wealth of beauty and charm which give an added appeal to the already interesting line of McLaurin-Jones embossed papers.

These designs can be furnished on practically any of their various grades of gold, platinum, foil and colored papers which they manufacture. Samples of these new designs will be gladly sent upon request.

MISCELLANEOUS MARKETS

Office of the PAPER TRADE JOURNAL,
Wednesday, October 16, 1940.

BLANC FIXE—Prices on blanc fixe are firm and unchanged and conform to prevailing market levels. The pulp is currently quoted at $35 per ton, in barrels, at works; the powder is currently quoted at $50 per ton, f.o.b., works. Demand reported moderate for the week.

BLEACHING POWDER—Quotations on bleaching powder are firm. Demand reported moderate for the week. Bleaching powder is currently quoted at $2 per 100 pounds, in drums, at works.

CASEIN—Prices on casein are firm, with prices unchanged for the current week. Standard domestic casein, 20-30 mesh, in currently quoted at from 11 to 13 cents per pound; 80-100 mesh, at from 11½ to 14 cents per pound. All prices in bags, car lots. Argentina casein, 20-30 mesh, is currently offered at from 11½ to 12 cents per pound. No quotations on French casein.

CAUSTIC SODA—Quotations on caustic soda are firm and continue unchanged at prevailing market prices. Shipments reported steady. Solid caustic soda is currently quoted at $2.30 per 100-pounds; flake and ground at $2.70 per 100 pounds, in drums, at works.

CHINA CLAY—Prices on china clay are firm and conform to prevailing market levels. Demand reported moderate at this date. Domestic filler clay is currently quoted at from $7 to $15 per ton; coating clay at from $11 to $22 per ton, at mines. Imported clay is currently offered at from $13 to $25 per ton, ship side.

CHLORINE—Quotations on chlorine are firm and unchanged. Shipments reported steady during the current week. Chlorine is currently quoted at $1.75 per 100 pounds, in single-unit tank cars, f.o.b., works.

ROSIN—The rosin market is reported firm for the week with prices a little higher. "G" gum rosin is currently quoted at from $1.57 to $1.61 per 100 pounds, in barrels, Savannah. "FF" wood rosin is currently quoted at from $1.57 to $1.65 per 100 pounds, in barrels, New York.

SALT CAKE—Prices on salt cake are firm and nominal, Demand steady. Domestic salt cake is currently quoted at $17 per ton, in bulk; chrome cake at $16 per ton. All prices in car lots, f.o.b., shipping point. The quotation of $20 per ton on imported salt cake is nominal.

SODA ASH—Quotations on soda ash are firm and continue to conform to prevailing market levels. Demand reported moderately good for the week. Prices on soda ash in car lots, per 100 pounds, are as follows: in bulk, $.90; in paper bags, $1.05; and in barrels, $1.35.

STARCH—Prices on corn starch are firm and continue unchanged at prevailing market levels. Pearl is currently quoted at $2.95 per 100 pounds; powdered starch at $3.05 per 100 pounds. All prices in bags, car lots, f.o.b., Chicago.

SULPHATE OF ALUMINA—Quotations on sulphate of alumina are firm. Demand continues good for the current week. The commercial grades are currently quoted at $1.15; iron free at $1.60 per 100 pounds. All prices in bags, car lots, f.o.b., works.

SULPHUR—Prices on sulphur are firm and conform to prevailing market levels. Annual contracts are currently quoted at $16 per long ton, f.o.b., mines. Spot and nearby car lots are quoted at $19 per ton.

TALC—Quotations on talc are firm and continue unchanged at prevailing market prices. Domestic talc is currently quoted at from $15 to $21 per ton, at mines. Quotations on imported talc are nominal.

MARKET QUOTATIONS

Paper

(Delivered New York)

News, per ton—			
Roll, contract	$50.00	@	—
Sheets	58.00	"	—
Kraft—per cwt.—Delivered Zone A			
Northern, Extra Quality	$5.25	@	$5.75
Superstandard	4.87½	"	5.25
Northern Standard Wrapping	4.37½	"	4.62½
Standard Wrapping	4.25	"	—
Tissues—Per Ream—Carlots			
White No. 1	.97½	"	—
White No. 1 M. G.	.95	"	—
White No. 1½	.80	"	—
White No. 2	.75	"	—
Anti-Tarnish M. G.	.80	"	—
Colored	.85	"	—
Kraft	.87½	"	—
Manila	.77½	"	—
Unbl. Toilet, 1 M.	3.75	"	—
Bleached Toilet	5.26	"	—
Paper Towels, Per Case—			
Unbleached, Jr.	2.10	"	—
Bleached, Jr.	3.60	"	—
Manila—per cwt.—C. l. l. a.			
No. 1 Jute	8.25	@	10.25
No. 1 Manila Wrapping, 35 lb.	5.25	"	—
No. 2 Manila Wrapping, 35 lb.	5.00	"	—
Boards, per ton—			
News	35.00	@	40.00
Chip	35.00	"	40.00
Sgl. Mla. Ll. Chip	55.00	"	57.00
White Pat. Coated	67.00	"	70.00
Kraft Liners	55.00	"	—
Binders Boards	73.00	"	80.00

The following are representative of distributors' resale prices:

Rag Content Bonds and Ledgers—White, Assorted Items, Delivered in Zone 1:

	Bonds		Ledgers
100% Rag Ext. No. 1.	$39.10 @ $46.00		$40.25 @ $47.25
100% Rag	31.05 " 36.50		32.20 " 37.75
85% Rag	.... "		29.90 " 35.00
75% Rag	23.60 " 27.75		24.75 " 29.00
65% Rag	.... "		21.65 " 26.25
50% Rag	17.55 " 21.50		18.70 " 22.75
25% Rag	14.65 " 17.75		15.80 " 19.25

Colors at $1.00 cwt. extra.

Sulphite Bonds and Ledgers—White, Assorted Items, Delivered in Zone 1:

	Bonds		Ledgers
No. 1	$9.35 @ $11.50		$11.55 @ $12.75
No. 2	8.50 " 10.25		9.65 " 11.75
No. 3	8.05 " 9.25		9.20 " 11.25
No. 4	7.70 " 9.50		8.90 " 10.75

Colors $1.00 cwt. extra.

Free Sheet Book Papers—White, Cased Paper, Delivered in Zone 1:

No. 1 Glossy Coated	$11.90	@	$13.50
No. 2 Glossy Coated	10.35	"	11.75
No. 3 Glossy Coated	9.55	"	11.00
No. 4 Glossy Coated	9.15	"	10.50
No. 1 Antique (watermarked)	9.05	"	$10.50
No. 2 Offset	8.40	"	9.75
A Grade E. F.	8.20	"	9.50
A Grade S. & S. C.	8.45	"	9.75
B Grade E. F.	7.65	"	8.75
B Grade S. & S. C.	7.90	"	9.00
C Grade E. F.	7.35	"	8.50
C Grade S. & S. C.	7.60	"	8.75
D Grade E. F.	7.10	"	8.25
D Grade S. & S. C.	7.35	"	8.50

Ivory & India at $.50 cwt. extra

Mechanical Pulp

(On Dock, Atlantic Ports)

No. 1 Imported—Moist	Nominal		
Dry	Nominal		
(Delivered)			
No. 1 Domestic and Canadian	45.00	@	46.00

Chemical Pulp

(On Dock, Atlantic, Gulf and West Coast Ports)

Bleached Sulphite (Domestic and Foreign)—			
Prime Bleached Sulphite	3.72½	@	3.87½
Prime Qualities—			
Easy-Bleaching Sulphite	3.17½	"	3.73
Strong Unbleached Sulphite	3.17½	"	3.75
(On Dock, Atlantic Ports)			
Kraft Bleached	4.12½	"	
Kraft Light & Strong	3.50	"	3.73
Kraft No. 1	3.40	"	3.60
(F. o. b. Pulp Mill)			
Kraft Domestic and Canadian	2.75	"	3.37½
(Delivered)			
Soda Bleached	3.30	"	—

Add 60 cents per short ton, dock charges for Albany; $2.50 for Lake Ports East and $3.50 for Lake Ports West of Mackinac Straits.

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.

Shirt Cuttings—			
New White, No. 1.	6.50	@	6.75
Silesias No. 1	4.50	"	4.65
New Unbleached	6.50	"	6.75
Blue Overall	4.35	"	4.50
Fancy	3.25	"	3.50
Washables	2.00	"	2.13
Mixed Khaki Cuttings	2.75	"	3.00
O. D. Khaki Cuttings	3.00	"	3.15

Old Rags

White, No. 1—			
Repacked	3.50	"	3.65
Miscellaneous	2.75	"	3.00
White, No. 2—			
Repacked	2.50	"	2.75
Miscellaneous	2.00	"	2.25
Thirds and Blues—			
Repacked	1.50	"	1.65
Miscellaneous	1.10	"	1.25
Roofing Rags—			
No. 1	1.00	"	1.10
No. 2	.90	"	.95
No. 3 (bagging)	.90	"	1.00
No. 4	.60	"	.65
No. 5A	.60	"	.65

Foreign Rags

All prices nominal

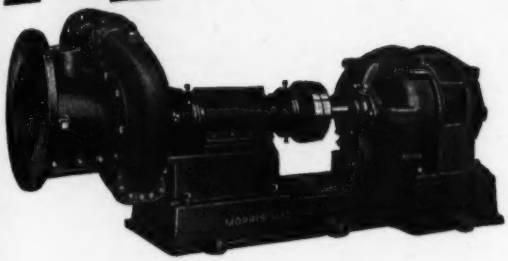
New Rags

New Dark Cuttings	2.25	@	2.40
New Mixed Cuttings	2.00	"	2.20
New Light Silesias	5.50	"	5.75
Light Flannelettes	5.50	"	5.75
New White Cuttings	7.00	"	7.50
New Light Oxford	4.00	"	4.50
New Light Prints	3.00	"	3.25

Old Rags

No. 1 White Linens	7.50	"	8.50
No. 2 White Linens	6.50	"	7.50
No. 3 White Linens	4.50	"	—

MORRIS



The Morris ST-P Stock Pump

Handles raw waste without clogging

•

Will not dehydrate stock

•

Maintains capacity at varying heads

•

GUARANTEED non-binding

. . . your logical choice for centrifugal pumps on every mill service, *because*

Experience—

Morris designs are based on 76 years of experience in building centrifugal pumps for pulp and paper mills.

Performance—

In 1940, as in 1870, the service records of Morris Pumps prove that they have ample capacity, uniformly even flow, remarkable resistance to wear, freedom from trouble, and are economical to operate.

Complete Line—

Morris makes an exactly suitable type for each mill service, including thick stock, thin stock, chemicals, clear or white water, boiler feed, fire protection, condenser circulating, general service, etc.

Write for Bulletins

MORRIS MACHINE WORKS
BALDWINSVILLE, N. Y.

"NON-USERS ARE THE LOSERS"

TENAX FELTS

FINISH AND TRIM

AMERICA SHOULDERS THE LOAD!

As available man-power is decreased, our machine-power must be increased. Now is the time to clothe your machines with TENAX FELTS. Assure yourself of many profitable hours of steady production over long periods of operation—we invite you to consult our engineers.

"Non-Users Are The Losers"

LOCKPORT FELT COMPANY
NEWFANE, N. Y.–U. S. A.

No. 4 White Linens.	2.25	@	3.25
No. 1 White Cotton.	4.25	"	4.75
No. 2 White Cotton.	3.25	"	3.75
No. 3 White Cotton.	2.50	"	3.00
No. 4 White Cotton.	1.90	"	2.20
Extra Light Prints..	2.00	"	2.40
Ord. Light Prints...	1.75	"	2.15
Med. Light Prints..	1.55	"	1.95
Dutch Blue Cottons.	2.25	"	2.50
French Blue Linens..	3.00	"	—
Checks and Blues...	2.00	"	—
Linsey Garments....	1.90	"	2.00
Dark Cottons.....	1.50	"	1.60
Old Shopperies.....	1.30	"	1.45
New Shopperies.....	1.45	"	1.50
French Blues.....	2.25	"	2.50

Old Rope and Bagging

(Prices to Mill, f. o .b. N. Y.)

Gunny No. 1—			
Foreign	2.75	@	3.00
Domestic	2.50	"	2.75
Wool Tares, light...	2.00	"	2.25
Wool Tares, heavy..	2.12½	"	2.25
Bright Bagging	2.25	"	2.50
Manila Rope—			
Foreign	4.75	"	5.00
Domestic	4.50	"	4.75
Jute Threads.....	2.62½	"	2.75
Sisal Strings.....	2.10	"	2.35
Mixed Strings.....	1.10	"	1.20

Old Waste Papers

(F. o. b. New York)

Shavings—			
White Envelope Cuttings	3.10	@	3.25
Ordinary Hard White No. 1....	2.25	"	2.50
Soft White No. 1..	1.80	"	1.90
Soft White Extra..	2.50	"	2.60
Flat Stock—			
Stitchless	1.10	"	1.25
Overissue Mag.....	.90	"	1.00
Solid Flat Book....	.80	"	.85
Crumbled No. 1...	.70	"	.75
Ledger White Stock.	1.80	"	1.90
Ledger Stock Colored	1.30	"	1.40
Manila—			
New Env. Cut....	1.70	"	1.80
New Cuttings.....	1.30	"	1.40
Old Kraft Machine Compressed bales..	1.35	"	1.50
News—			
No. 1 White News	1.75	"	1.90
Strictly Overissue.	.70	"	.75
Strictly Folded....	.50	"	.55
Corrugated	.65	"	.67½
No. 1 Mixed Paper..	.32½	"	.35

Twines

(F. o. b. Mill)

(Soft Fiber)

Coarse Polished—			
India	.18	@	—
White Hemp.....	.18	"	—
Fine Polished—			
Fine India.....	.22	"	—
Unpolished—			
Box	.16	"	—
Paper Makers.....	.13	"	—
Tube Rope.....	.14¾	"	—
Wall Paper.....	.16	"	—
Wrapping	.16	"	—
Soft Fiber Rope...	.14	"	—
Cotton	.24	"	—

(Hard Fiber)

Medium Java.....	.10	"	—
Mex. Sisal.....	.09½	"	—
Manila	.23	"	—

PHILADELPHIA

Domestic Rags (New)

(Price to Mill, f.o.b. Phila.)

Shirt Cuttings—			
New White No. 1.	.06½	@	.07
New White No. 2.	.03½	"	.04
Light Silesias.....	—	"	.04½
Silesias, No. 1....	—	"	.04
Black Silesias, soft	—	"	.03
New Unbleached...	.06	"	.06¼
Washable Prints...	.02¼	"	.02½
Washable, No. 1..	—	"	.01¾
Blue Overall.....	.04	"	.04½
Cottons—According to grades—			
Washable shredding	—	"	.01¾
Fancy Percales....	—	"	.03
New Black Soft...	.02½	"	.02¾
New Light Seconds	—	"	.04
New Dark Seconds	—	"	1.50
Khaki Cuttings—			
No. 1 O. D.....	.03½	"	.03¾
No. 2 Mixed.....	.01¾	"	.02
Corduroy	.01¾	"	.01½
New Canvas.....	.04½	"	.05
New Black Mixed.	—	"	.02¾

Domestic Rags (Old)

White No. 1—			
Repacked	3.00	@	3.50
Miscellaneous	2.50	"	2.75
Thirds and Blues—			
Miscellaneous	1.35	"	1.50
Repacked	1.55	"	1.65
Black Stockings (Export)	3.50	"	4.00
Roofing Stock—			
Foreign No. 1....Nominal			
Domestic No. 1...	—	"	.80
Domestic No. 2...	—	"	.80
Roofing Bagging..	—	"	.70

Bagging

(f.o.b. Phila.)

Gunny, No. 1—			
Foreign	Nominal		
Domestic	2.25	@	2.50
Manila Rope.....	—	"	4.75
Sisal Rope.....	1.75	"	2.00
Mixed Rope.....	.75	"	1.00
Scrap—			
No. 1.....	2.25	"	2.50
No. 2.....	—	"	1.50
Wool Tares, heavy..	3.50	"	3.70
No. 1 New Light Burlap	3.00	"	4.00
New Burlap Cuttings	2.00	"	2.25

Old Papers

(f.o b Phila.)

Shavings—			
No. 1 Hard White	2.40	@	2.50
No. 2 Hard White	2.10	"	2.15
No. 1 Soft White	2.00	"	2.10
No. 2 Soft White	1.60	"	1.75
No. 1 Mixed.....	.90	"	1.00
Solid Ledger Stock..	1.90	"	2.00
Ledger Stock, white.	1.75	"	1.80
Ledger Stock, colored	1.20	"	1.25
No. 1 Books, heavy..	.85	"	.90
Manila Cuttings.....	1.75	"	1.80
Print Manila.....	.60	"	.65
Container Manila....	.50	"	.55
Kraft Paper.....	1.40	"	1.50
No. 1 Mixde Paper..	.45	"	.50
Straw Board Chip...	.45	"	.50
Binders Board Chip..	.45	"	.50
Corrugated Board...	.65	"	.70
Overissue News.....	.75	"	.80
Old Newspapers.....	.50	"	.55

BOSTON

Old Papers

(f.o.b. Boston)

Shavings—			
No. 1 Hard White	2.75	@	3.00
No. 1 Soft White	2.00	"	2.25
No. 2 Mixed.....	.75	"	.80
Solid Ledger Books..	1.50	"	1.75
Overissue Ledger Stock	1.75	"	2.00
Mixed Ledgers.....	1.25	"	1.50
No. 1 Heavy Books	1.10	"	1.20
No. 1 Books, Light..	.75	"	.85
Crumpled Stitchless Book Stock.....	.75	"	.85
Manila Env. Cuttings	1.85	"	2.00
Manila Envelope Cuttings, extra quality	2.35	"	2.60
White Blank News	1.40	@	1.50
No. 1 Kraft.....	1.35	@	1.40
Extra No. 1 Kraft...	1.60	"	1.90
Mixed Papers.....	.35	"	.40
Print Manila.....	.55	"	.60
Container Manila...	.60	"	.70
Old Newspapers.....	.50	"	.55
Paper Wool Strings.	.95	"	1.10
Overissue News.....	1.00	"	1.10
Box Board Chips....	.40	"	.45
Corrugated Boxes...	.60	"	.65
Kraft Corrugated Boxes	1.05	"	1.15
New Kraft Corrugated Cuttings	1.45	"	1.60
Screening Wrappers	.60	"	

Bagging

(f.o.b. Boston)

Gunny Bagging—			
Foreign	—	"	2.35
Domestic	2.25	"	2.40
Sisal Rope.....	2.25	"	2.50
Mixed Rope.....	.85	"	1.00
Transmission Rope—			
Foreign	—	"	2.40
Domestic	2.00	"	2.25
Soft Jute Rope.....	3.00	"	3.25
Manila Rope—			
Foreign .....(nominal)			
Domestic	4.75	"	5.00
Jute Carpet Threads.	1.50	"	1.75
Bleachery Burlap....	4.00	"	3.25
Scrap Burlap—			
Foreign	2.35	"	2.50
Domestic	2.15	"	2.35
Scrap Sisal.....	2.25	"	2.50
Scrap Sisal for Shredding	2.30	"	2.65
Wool Tares—			
Foreign, Heavy...	2.25	"	2.40
Domestic	2.40	"	2.50
Aust. Wool Pouches.	2.75	"	3.00
New Burlap Cuttings	3.75	"	4.00
Heavy baling bagging	2.25	"	2.40
Paper Mill Bagging..	1.75	"	2.00
No. 2 Bagging.....	.75	"	.80

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints.	—	@	.03
Fancy Percales....	.04	"	.04¼
New White No. 1.	.07	"	.07¼
New Light Flannelettes	.05	"	.05¼
Canton Flannel, Bleached	.07	"	—
Silesias No. 1	.05	"	—
New Black Silesias..	3.00	"	3.25
Red Cotton Cuttings	.04	"	.05
Soft Unbleached...	.07	"	.07½
Blue Cheviots.....	.05	"	.05½
Fancy	.02	"	.02½
Washable	.02	"	.02¾
Cottons—According to Grades—			
Blue Overalls.....	.04¾	"	.05
New Black, Soft..	.03	"	.03½
Khaki Cuttings....	.02½	"	.03
O. D. Khaki.....	.02½	"	.03¼
Corduroy	.04	"	....
New Canvas.....	.06¼	"	.07¼
B. V. D. Cuttings...	.07	"	.07½

Domestic Rags (Old)

(F. o.b. Boston)

White No. 1—			
Repacked	2.75	"	3.75
Miscellaneous	2.40	"	2.60
White No. 2—			
Repacked	1.90	"	2.00
Miscellaneous	2.00	"	2.25
Twos and Blues.....	1.50	"	2.00
Old Blue Overalls ..	1.60	"	2.00
Thirds and Blues—			
Repacked	—	"	1.25
Miscellaneous	—	"	1.00
Black Stockings.....	3.50	"	4.00
Roofing Stock—			
No. 1.....	1.00	"	1.25
No. 2.....	—	"	1.10
No. 3.....	—	"	.90

Foreign Rags

(F. o. b. Boston)

Canvas	.04¼	@	—
Dark Cottons.....(nominal)			
Dutch Blues.....(nominal)			
New Checks and Blues(nominal)			
Old Fustians.....(nominal)			
Old Linsey Garments.(nominal)			
New Silesias.....(nominal)			

CHICAGO

Waste Paper

(f.o.b. Chicago)

Shavings—			
No. 1 White Envelope cuttings....	3.15	@	—
No. 1 Hard White	2.50	"	2.65
No. 1 Soft White.	2.00	"	2.20
Ledger and Writings	.85	"	.95
Solid Books.....	.95	"	1.10
Blanks	1.50	"	1.60
Kraffs	1.40	"	1.50
New Kraft Cuts.....	1.60	"	1.75
Overissue News.....	1.00	"	1.10
Old Newspapers—			
No. 1 Folded News	.70	"	.80
No. 1 Mixed Paper	.40	"	.50
Roofing Stocks—			
No. 1.....	.95	@	1.00
No. 2.....	.85	"	.90

Oppose Cotton Use for Paper

Charles M. Haskins, managing director of the National Association of Waste Material Dealers, Times Building, New York, sent this telegram to the Secretary of Agriculture, Washington, D. C.:

"I understand that negotiations are now going on between J. B. Wyckoff, Chief of the Marketing Division, Surplus Marketing Administration, Department of Agriculture, and the Writing Paper Manufacturers Association for 10,000 bales of cotton at a subsidy of 50 per cent of the current price on cotton on 75 per cent of the tonnage asked for, this in addition to 1,000 bales already furnished on the same basis. This association respectfully but earnestly protests the Department of Agriculture granting any further subsidy on cotton for the writing paper industry. At this time when the National Defense Program is going to require the entire available collection machinery of the waste material industry to supplement virgin raw materials, the proposition which Mr. Wyckoff has under consideration if granted may seriously cripple the contribution our industry expects to make to the defense program. We assert that the subsidizing of 10,000 bales of cotton is equivalent to conferring on an industry the power to control markets on the balance of its raw materials. In a letter dated April 23 of this year, J. D. LeCron, assistant to the secretary, wrote as follows: 'The department has in mind no large scale program of this nature. Should one ever be contemplated, I am sure that those in charge would consult with the various factors in the industry which might be affected by such a program.' We ask your assurance that this industry be granted an opportunity to discuss this matter with you before the pending negotiations are brought to a conclusion."